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IN THE

Supreme Court of the United States

OCTOBER TERM, 1980

No. 79-1771

TRIO PROCESS CORP., *et al.*,
Petitioners,

v.

L. GOLDSTEIN'S SONS, INC., *et al.*,
Respondents.

APPENDIX TO PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

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APPENDIX A

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

Civil Action No. 38,166

TRIO PROCESS CORPORATION,
Plaintiff,

v.

L. GOLDSTEIN'S SONS, INC.,
Defendant.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

FULLAM, J. January 27, 1971

This is a patent infringement and unfair competition action. The defendant contests the validity of the plaintiff's patent, and denies that it has infringed the plaintiff's patent. Pursuant to Fed. R. Civ. P. 42(b), the issues of liability for infringement and damages have been separated.

By way of background, the patent as issued is a process patent. However, as originally filed, the application contained both process and apparatus claims. The apparatus which was not covered by the patent as issued is comprised of a large conical furnace with a cylindrical afterburner section above the furnace. The furnace was designed to be used in commercial metal reclamation yards.

Upon review of the trial record, and consideration of the respective parties' proposed findings of fact and conclusions of law, the Court makes the following:

FINDINGS OF FACT

1. United States Patent No. 3,076,421 was issued on February 5, 1963 to Albert W. Spitz. Trio Process Corporation (hereinafter Trio) is now the rightful owner of the '421 patent.

2. Trio is a Pennsylvania corporation having its principal place of business at 437 N. Sterling Road, Elkins Park, Pennsylvania.

3. The Metal Bank of America, Inc. is a successor corporation to L. Goldstein's Sons, Inc., the named defendant, with its principal place of business at Knorr Street and Wissinoming Avenue, Philadelphia, Pennsylvania.

4. In October of 1957, the Franklin Smelting and Refining Company, of Philadelphia, Pennsylvania, engaged Mr. Albert W. Spitz as a consulting engineer. Mr. Spitz's first undertaking was to devise a method to improve Franklin's copper wire reclamation procedures.

5. At the time Mr. Spitz was engaged, wire reclamation through the medium of heat was primarily done by open burning or in fixed hearth furnaces.

6. During Mr. Spitz's research work, he viewed the copper reclamation procedures of the American Smelting and Refining Company of Perth Amboy, New Jersey. At American, a two-chamber refractory furnace was used in conjunction with an afterburner eight to fifteen feet down flue from the primary chambers.

7. The prototype of the apparatus currently used to carry out the plaintiff's process was constructed between four to five months later. Franklin used the first workable furnace constructed by Mr. Spitz in its copper reclamation process in late 1958 or early 1959. The furnace was frusto-conical in shape with a cylindrical afterburner section affixed to the lower section. The fur-

nace was provided with an eye at the top to allow a crane to move the furnace about.

8. The defendant corporation engaged a consulting engineer in January of 1959 to improve its reclamation operations. At that time, the defendant knew of the Spitz development and showed the Spitz furnace at Franklin to its consulting engineer. Although working concepts for two possible furnaces were developed by the consultant, neither was adopted by the defendant.

9. By July of 1959, the defendant was utilizing a chopping method to reclaim copper wire. A patent, No. 3,074,653, was issued to John Schorsch, vice-president of the defendant corporation, covering the apparatus used for this procedure.

10. In November of 1959, the defendant sought an opinion letter from a patent attorney relating to the patentability of the Spitz furnace. Mr. Schorsch provided the attorney with a diagram of the Spitz furnace. It was the attorney's opinion that the Spitz furnace was not patentable. Defendant did not seek an opinion of counsel as to the validity of the process patent after issuance.

11. By two written agreements of January 2, 1960, the defendant purchased a Spitz furnace and the license to use the furnace and the method for the duration of the life of the furnace, within a 30 mile radius of its principal place of business.

12. On May 12, 1960, the defendant purchased another Spitz furnace and acquired the license rights to use the second furnace and method, pursuant to the terms of the first license agreement.

13. In October of 1964, the defendant contracted with a metal fabricator for the construction of a copy of the Spitz furnaces which had been delivered to the defendant pursuant to purchase agreements with Trio.

14. The defendant acquired AMA Metal Corporation of Oceanside, New York, on February 1, 1965. At that time, AMA was a licensee of Trio and had purchased one furnace from Trio.

15. In March of 1965, the defendant ordered two more copies of the Spitz furnace, one of which was delivered to AMA. Thereafter the defendant contracted for the construction of six more furnaces to be built in essential conformity with the original furnaces delivered by Trio.

16. From 1960 to 1968, the defendant had secured clearances from the Department of Public Health of the City of Philadelphia to operate the furnaces on its properties.

17. The prosecution of the '421 patent was initiated on October 29, 1958. The application contained five claims. On February 24, 1959, the examiner rejected apparatus claims 1, 3, 4 and 5 on the basis of prior art. Claim 2, a method claim, was rejected as an improper method claim and on the basis of prior art.

18. On August 25, 1959, claims 1 through 5 were withdrawn and claims 6 through 13 were added. On March 8, 1960, apparatus claims 6 through 9 were rejected on the basis of prior art. Method claims 10 through 13 were rejected as improper method claims because they relied on specific aspects of apparatus, and on the basis of prior art.

19. On September 8, 1960, claims 6 through 9 were amended, claims 10 through 13 were withdrawn, and claims 14 through 17 were added to replace claims 10 through 13. The examiner, on April 4, 1961, again rejected apparatus claims 6 through 9 due to prior art and on the basis that as amended they contained new matter. Method claims 14 through 17 were rejected as indefinite and misdescriptive. One basis for concluding claims 16

and 17 were misdescriptive was that they specified that the combustion chamber was superimposed over the scrap pile before ignition, whereas the original disclosure stated the scrap was to be ignited before superimposing the chamber over the scrap pile.

20. Amendments were filed October 2, 1961. However, on January 10, 1962, the amendments were found to be nonresponsive to the examiner's rejection of April 4, 1961.

21. On January 15, 1962, claims 6 through 9, the apparatus claims, were withdrawn. An amendment was also made to claim 17. Further amendments were filed on March 16, 1962. Notice of allowance was mailed May 14, 1962, and the patent was issued February 5, 1963.

22. Patent '421 as issued contains claims 14 through 17 renumbered to be claims 1 through 4. At issue in this litigation are claims 1, 3 and 4. These claims are set out in the Appendix.

23. Of the seven patents cited by the examiner, the defendant relied upon the following at trial:

(a) The Morgan patent, Patent No. 1,082,644, was issued December 30, 1913. The inventor's purpose was to design a portable incinerator for the burning of tree stumps. The apparatus was comprised of a frusto-conical casing with an opening at the bottom to allow the burner to be placed over the stump, and having a conical top on the casing converging into a smoke stack. An opening and door were provided in the main body of the casing. A tube was also provided in the side of the casing to direct the air supply within the casing.

(b) The Lovelace patent, No. 266,850, issued October 31, 1882, related to the design of a portable charcoal kiln to be used in conjunction with a foundation constructed with a central fire chamber. Two passages were provided

from the external side of the foundation through the foundation to the fire chamber with the opening at the exterior of the foundation equipped with a door and damper to control the amount of air reaching the fire chamber. The fire chamber was covered with a grate and solid door to prevent the fire from igniting the wood in the kiln. Flues were provided from the side of the fire chamber to the top of the foundation to allow the heat to reach the kiln area. Exit flues were provided from the top of the foundation downward and then outward to the exterior of the foundation to allow steam and smoke to be emitted. The hood which fit over the foundation was comprised of two steel hoods one-half inch apart. Ashes or other non-conductive material were to be used to prevent heat radiation and entry of air into the kiln. A door at the top of the hood was provided for placing wood into the kiln and a side door for taking the processed wood out. In the alternative, the hood could be merely placed over the material and then removed after processing. The purposes of the patent were to prevent oxidation by allowing as little air as possible to enter the kiln area, and providing the necessary heat without direct contact of the wood with the fire source.

(c) The Breitweiser patent, No. 1,773,256, issued August 19, 1930, related to a device for deodorizing effluent gases of an incinerator. A cylindrical casing is to be fitted over an incinerator with the exit port of the incinerator coincident to the inlet port of the device. Adjacent to the inlet point of the device there is a burner adapted to direct a flame into the gases flowing up from the incinerator. An air intake port was provided to furnish air to the gases after they passed through the flames of the burner. The gases then moved up the cylinder through a grouping of baffles and out through an exit opening.

(d) The Cummings patent, No. 1,528,816, issued September 20, 1925, related to an incinerator. The purpose

was to insure deodorization of the gaseous products of incinerators. A cylindrical container was provided with a side access hopper allowing refuse to be delivered to a container within the cylinder. Adjacent to the container a burner was specified for ignition of the refuse. The gases from the burning of the refuse then rose to a honeycombed partition which was preheated to an incandescent level by a burner adjacent to the partition, and the gases circulated through the honeycomb and out the exit port. The lower ignition burner was to be controlled so that the volume of byproduct gases was such that they could be completely destroyed when passed through the upper partition.

(e) The Wilkins patent, No. 2,815,278, issued January 20, 1954, contained both method and apparatus claims for the reclamation of copper from copper scrap wire. The patentee's purpose was to avoid oxidation of the copper and discharge of smoke. Generally, the method involved the forming of a column-like pile of scrap wire over a bed of carbonaceous material, and igniting said carbonaceous base and supplying air sufficient to generate a temperature above the melting point of copper. As a result thereof, hot gaseous combustion products, which are deoxidizing in relation to copper, moved upward through the wire scrap, and in conjunction with the heat of the carbonaceous bed caused destructive distillation of the organic wire covering without ignition of the by-products of the destructive distillation, said by-products moving upward through the scrap pile. The molten copper then filtered through the carbonaceous bed and out to a receptacle. Combustion air was regulated to insure a sufficient temperature at the ignition bed for burning of any remaining carbon residue fallout of the destructive distillation. The presence of carbon residue and the burning thereof provided a self-replenishing fuel source to continue distillation. As the scrap is melted, additional charging

material is added. Claim (9) adds a secondary combustion chamber for the supplying of air and burning of the remaining by-products of the prior method.

24. The following were also relied upon by the defendant as appropriate prior art:

(a) The Edwards patent, No. 292,635, issued on January 29, 1884, related to a charcoal oven. Three separate pieces of apparatus were used in conjunction with each other. It had a conical oven with a conical door at the apex of the cone, and two rows of ports at the bottom of the cone at different heights parallel to the ground with damper controls on them. The lower access holes were to control the draft, and the upper access holes were to serve to evacuate smoke and gases during burning. A hoist mechanism was provided to raise the oven above the ground. A revolving template on a post was used to allow a workman to form a conical pile of wood. The purpose of the invention was to provide a portable metal oven that could be superimposed by the use of the hoist system over the conical pile of wood formed by use of the revolving template without need of a grate or foundation under the wood pile. The lower set of intake ports was used to furnish air in such amount as to support slow combustion, and the upper set of ports allow smoke and gases to escape from the otherwise enclosed area.

(b) The Kurre patent, No. 245,179, issued on August 2, 1881, related to a stump burner composed of three or more cylindrical sections topped by a cone-shaped hood and a central smoke stack. The lower cylinder was placed over the stump, and the remaining members were then assembled on top of the lower cylinder. Access doors and controlled draft doors were provided in the lower cylinder.

(c) The Middaugh patent, No. 1,199,403 issued September 26, 1916, related to a refuse burner for particular application to the disposing of waste from sawmills. Two

conical shells are attached to either side of supporting struts. The bottom of the conical shell has a grate with an intake air passage furnished to allow the inducing of air directly under the refuse. An opening is provided around the bottom of the outside shell to allow air to circulate up between the two shells and to be discharged through a hood attached to the shells. The circulation of air is to prevent the shell from overheating. An access door is located in the upper portion of the shell to allow refuse to be placed into the device.

(d) The Cassity patent, No. 1,126,388, issued on January 26, 1915, related to a portable stump burner. The burner consists of a casing of sheet metal in a frusto-conical shape with a damper inlet at the lower portion of the casing for controlling the draft. The lid or top of the casing is provided with an opening for the insertion of an air pipe to be used to direct air at stump roots after consumption of the stump itself. Said draft pipe is removable with a cover fitting over the lid when the air pipe is not used. Dirt was to be packed around the edges of the cone to preclude the entry of air.

25. The four additional patents relied on by the defendant do not show any new elements which were not already considered by the patent examiner.

26. Defendant also relies on the following three selections from the air pollution literature as prior art references:

(a) "Air Pollution Handbook", by Magill, Holden and Ackley (McGraw-Hill, 1956) at 13-19 relates the necessary elements of an incinerator to reclaim copper from copper scrap without the creation of a serious air pollution problem. The material suggests the use of a primary combustion chamber; a secondary chamber; and a final chamber for the introduction of additional combustion

heat and air through air ports and fuel burners to insure complete combustion.

(b) "Air Pollution—United States Technical Conference on Air Pollution", edited by McCabe (McGraw-Hill, 1952) at 400-02 relates to the design of incinerators. The material suggests the use of a two-chamber system to insure full combustion of the effluent of the initial combustion chamber. Moreover, it is noted that the effectiveness of the secondary chamber is a function of the amount and velocity of combustion air supplied to the secondary chamber, and the heat in this chamber. If the temperature in the secondary chamber is low, gas or oil burners are suggested.

(c) A paper entitled, "Fuel-Fed Incinerator Research at New York University" found in "Proceedings of a Symposium on the Developments in Incinerator Research at New York University", published May 23, 1957, relates to improvement of apartment house incinerators in the City of New York by modification of existing single chamber incinerators so as to lessen the smoke and particle discharge. The approach indicated is to install a burner-blower combination upstream from the point of refuse ignition to facilitate the combustion of gaseous effluent and particles produced by the original and subsequent slow burning of the refuse charge. At a later point, referring to multi-chamber incinerators, it is pointed out that proper control of the volume of combustion air available in the primary chamber is critical to the prevention of smoke discharge. The use of burners in the secondary unit is recognized as sometimes necessary to insure proper temperature ranges in the secondary or mixing chamber. In the event black smoke is discharged, it is recommended that primary combustion air be curtailed and secondary air increased.

27. The literature relied upon by the defendant, and not cited by the examiner, makes clear that multi-

chamber incineration was known in the prior art to be an advantageous way to curtail smoke and particle discharge, prior to the time Mr. Spitz began his work. Specifically, it was known that smoke discharge is a function of two factors: the amount of combustion air available in the primary combustion chamber; and the capacity of the secondary chamber to handle the effluent moving upstream. The secondary or mixing chamber's efficiency depends on the air available and its temperature.

28. The Cummings patent '816, cited by the examiner, showed principles similar to those referred to in Finding 27 in the context of deodorizing gaseous products of refuse discharge. The literature cited by the defendant focuses on the importance of the above-mentioned factors in the context of air pollution control.

29. At the time Mr. Spitz conceived his idea, there was a need to improve the efficiency of copper reclamation procedures and to lessen the pollution discharge of the copper reclamation.

30. Plaintiff's patent met with limited commercial success.

31. The defendant uses its incinerators in the following way:

(a) a pile of scrap wire is formed

(b) the incinerator is placed on top of the pile

(c) the afterburner is ignited

(d) dirt is placed around the bottom of the incinerator

(e) a lighted torch is used to ignite the scrap by inserting the torch through each of the four doors of the incinerator

(f) after initial ignition, the four doors are closed

(g) the pile is left to burn for approximately 8 to 12 hours or longer depending on the material

(h) the afterburner is then shut off

(i) the incinerator is lifted off the pile.

32. The plaintiff's patent specifies that the pile of scrap wire be ignited prior to superimposing the incinerator over the pile of scrap wire.

33. Defendant's advertisements (P33, 34 & 35) are not false, deceptive or misleading.

34. The press release issued by the Union Corp. when it acquired Metal Bank of America was not false or misleading.

35. Defendant forwarded to a Brussels corporation a blueprint of the furnace used by the defendant, and the necessary information to utilize the furnace properly.

CONCLUSIONS OF LAW

1. This Court has jurisdiction over the parties and subject matter.

2. Venue is proper in this judicial district.

3. Plaintiff is the rightful owner of United States Letters of Patent No. 3,076,421.

4. Claims 1, 3 and 4 of plaintiff's patent are invalid under 35 U.S.C. § 103.

5. Defendant has infringed the plaintiff's method patent.

6. Defendant's infringement is willful.

7. Plaintiff has not proven a cause for unfair competition under Pennsylvania or federal law.

8. Defendant is not entitled to recover under 15 U.S.C. § 2.

ORDER

AND NOW, this 27th day of January, 1971, it is ORDERED that in Civil Action No. 38166 judgment is entered in favor of the defendant, L. Goldstein's Sons, Inc.

/s/ JOHN P. FULLAM, J.

APPENDIX

Claim 1. The method of removing organic coverings from scrap insulated electrical wire without substantially melting or oxidizing the metal content thereof while yet obtaining substantially complete combustion of the organic coverings thereof, which method comprises introducing fuel to a loose random pile of such scrap wire, igniting said fuel and said scrap, admitting air to the so ignited pile of scrap at such limited rate and air-cooling the zone surrounding the so ignited scrap-pile at such rate that the combustion of the organic coverings in the scrap pile will be incomplete and generally limited to the extent necessary to volatilize such organic coverings without the complete combustion of a substantial portion thereof and that the temperature of the scrap pile is kept below the melting point of the metal content thereof, thereafter passing the resultant effluent of gaseous products of such incomplete combustion and of such volatized organic coverings and any solid particles entrained therein through a long refractory-lined flow-path commencing beyond the aforementioned air-cooled zone and introducing a sufficient amount of fuel and air into said flow-path near the upstream end thereof and burning such fuel

to heat the refractory-lining of said flow-path and such effluent therein to a temperature necessary to effect a substantial combustion of the aforementioned effluent within said flow-path.

Claim 3. The method of removing organic coverings from random bales of scrap electric wire, in situ, on a loose scrap-pile thereof, which comprises introducing fuel to such loose scrap-pile and igniting said fuel and said scrap-pile, superimposing upon such loose scrap pile, in situ, a bottomless pile-enclosing chamber and admitting air to the so ignited and enclosed scrap pile at such limited rate and air-cooling the zone of said ignited scrap and the resultant gaseous products within said chamber that substantially all of such organic coverings will be converted into gaseous or gas-entrained materials, but with an incomplete combustion of a substantial portion of the so gasified and gas-entrained materials and that the temperature within said scrap-enclosing chamber will be below the melting point of the metal content of the electric wire, thereafter passing such effluent of the gaseous products from the scrap-pile and any solid matter entrained therein through a long refractory-lined flow-path beyond said chamber and introducing a sufficient amount of fuel and air into said flow-path near the upstream end thereof and burning such fuel within such flow-path to heat the refractory lining thereof and such effluent therewithin to a temperature necessary to effect a substantial combustion of such effluent within said flow-path.

Claim 4. The method of removing organic coverings from random bales of scrap electric wire, in situ, on a loose scrap-pile thereof, which comprises introducing fuel to such loose scrap-pile and igniting said fuel and said scrap-pile, superimposing upon such loose scrap pile, in situ, a bottomless pile-enclosing chamber and admitting

air to the so ignited and enclosed scrap pile at such limited rate and air-cooling the zone of said ignited scrap and the resultant gaseous products within said chamber that substantially all of such organic coverings will be converted into gaseous or gas-entrained materials, but with an incomplete combustion of a substantial portion of the so gasified and gas-entrained materials and that the temperature within said scrap-enclosing chamber will be below the melting point of the metal content of the electric wire, thereafter passing such effluent of the gaseous products from the scrap-pile and any solid matter entrained therein through a long refractory-lined flow-path beyond said chamber and introducing a sufficient amount of fuel and air into said flow-path near the upstream end thereof and burning such fuel within such flow-path to heat the refractory lining thereof and such effluent therewithin to a temperature necessary to effect a substantial combustion of such effluent within said flow-path, and thereafter passing the so resultant effluent through and in intimate contact with super heated refractory checkerwork just prior to its exit to the atmosphere to effect a substantial complete combustion thereof.

APPENDIX B [*Trio Process* I]

UNITED STATES COURT OF APPEALS
THIRD CIRCUIT

Nos. 71-1295, 71-1296

TRIO PROCESS CORPORATION,
Appellant in No. 71-1295,

v.

L. GOLDSTEIN'S SONS, INC.,
Appellant in No. 71-1296.

Argued March 24, 1972

Decided May 22, 1972

Thomas M. Ferrill, Jr., Blue Bell, Pa. (Roger Norman Coe, Philadelphia, Pa., on the brief), for Trio Process Corp.

Nelson E. Kimmelman, Necho & Kimmelman, Philadelphia, Pa., for L. Goldstein's Sons, Inc.

Before SEITZ, Chief Judge, and ADAMS and HUNTER, Circuit Judges.

OPINION OF THE COURT

ADAMS, Circuit Judge.

In this patent infringement case, we must first determine the validity of United States Patent No. 3,076,-421, issued to Albert W. Spitz (Spitz) and owned by Trio Process Corp. (Trio), and then decide whether the district court's finding of willful infringement is correct.

The primary issue of validity is whether the process disclosed in the patent was obvious to a practitioner with

ordinary skill in the appropriate art at the time the process was developed. The infringement issue can be resolved by determining whether Trio is precluded by "file-wrapper estoppel" from asserting the doctrine of equivalents to show infringement.

THE PATENT

The patent which forms the subject matter of this case teaches a process of removing organic insulation from scrap wire. The method basically consists of the following steps:

1. Igniting a pile of scrap wire and organic insulation;

2. Superimposing a bottomless combustion chamber over the ignited pile;

3. Admitting air at a limited rate to the ignited pile and simultaneously air-cooling the outside of the combustion chamber so that the temperature of the ignited pile remains below the melting point of the wire;

4. Passing the products of the combustion—smoke and hydrocarbon gases—through an afterburner, into which is added fuel and air, so that the smoke and gases will be substantially oxidized.

The device disclosed in the patent by which the process may be practiced consists of a portable, sheet-metal conical combustion chamber upon which a refractory-lined afterburner is superimposed.[1] Bunsen burners are suggested for introducing air and fuel into the afterburner chamber. A frame supports the afterburner. The frame

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[1] To a layman, the furnace resembles a huge, inverted funnel. An illustration of Spitz's furnace is reproduced in the Appendix to this opinion.

also provides a point for attachment to a crane so that the furnace may be lifted, carried to the site of the scrap wire, and then lowered over such wire.

FACTUAL BACKGROUND

For the past several decades, there has been an increasing demand for nonferrous metals, including copper, for the electrical and other industries. To meet this demand, newly-mined metals are supplemented with metals reclaimed from scrap sources. Before scrap wire can be reclaimed, however, it is necessary to remove the insulation covering such wire.

Prior to the development of the method set forth in the Spitz patent, two procedures were utilized to remove insulation from scrap wire. One such method was to burn the wire in an open field. This procedure was inefficient and uneconomical as it required that the wire be raked back and forth to achieve proper burning, and did not provide satisfactory control over the oxidation and melting of the wire.[2] It also contributed to air pollution by releasing smoke and other gases into the atmosphere. The other process involved the rapid burning of scrap wire at high temperatures in forced draft, stationary furnaces. These fixed furnaces were expensive to build and difficult to use because the wire had to be prepared for burning and then transported to the furnaces. Moreover, the reclaimed metal would have to be removed from the furnace before it could become oxidized or melted. Both methods required substantial manpower for their effective utilization.

In late 1957, Spitz undertook an assignment from Franklin Smelting & Refining Company to develop an effective method of removing insulation from wire. Spitz

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[2] It is important to control oxidation because excess oxidation can materially affect the physical properties of the metal.

investigated the procedures currently in use, devised a fixed furnace that could be charged from the top and unloaded from the bottom, and finally developed a concept converse to that previously employed, namely, the burning of the insulation in a portable furnace at a low temperature to be controlled by limiting the availability of air. Spitz's development had several advantages over the prior procedures: It reduced material handling costs, it diminished air pollution, and it efficiently produced No. 1 grade copper scrap inexpensively by a method which could be operated by relatively untrained personnel.

Spitz applied for a patent in October of 1958. The original application contained both apparatus and method claims. All of the claims were rejected by the examiner on the basis of prior art.[3] In 1959, the application was amended, but the new claims were also rejected.[4] The apparatus claims were amended in 1960, and new method claims were added to the application. Once more, the apparatus claims were disallowed on the basis of prior art, and the method claims were rejected as being misdescriptive[5] in that they provided for superimposition of the furnace prior to ignition of the scrap, whereas the patent disclosure specified ignition before the fur-

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[3] Prior art has been defined as follows:

> "The existing state of knowledge in a particular art at the time an invention is made. It includes the issued patents * * *, publications, and all other knowledge deemed to be common thereto such as trade skills, trade practices, and the like." A. Smith, Patent Law, Cases, Comments and Materials 2 (1964).

[4] The basis of the rejection of the new claims was that the apparatus was obvious in view of the prior art, and that the method claims were improper in that they relied on specific aspects of the apparatus and were disclosed in the prior art.

[5] A claim is considered misdescriptive when it is not literally supported by the language of the specification or disclosure contained in the patent.

nace was lowered into place. After further amendment and abandonment of the apparatus claims, the patent containing method claims issued on February 5, 1963.

Early in 1959, L. Goldstein's Sons, Inc. (Goldstein) became aware of the Spitz method and tried to emulate it, probably because Goldstein found the other two methods of processing scrap wire, described at p. 68, *supra*, unsatisfactory. Goldstein hired first one, then another engineer to attempt to duplicate the Spitz process, but although these engineers observed the Spitz furnace in operation, they were unable to devise a similar procedure. One of the engineers recommended a wire-chopping process which was eventually adopted for the reclamation of aluminum wire.[6] In November, 1959, Goldstein sought the opinion of a patent attorney as to the patentability of the Spitz furnace. The attorney advised that the furnace was not patentable. Goldstein did not seek an opinion as to the validity of the patent after its issuance in 1963.

In 1960, Goldstein obtained licenses from Trio to use Spitz's method to process scrap wire.[7] Trio applied for and obtained on Goldstein's behalf appropriate permits from the City of Philadelphia. Spitz subsequently approached Goldstein in late 1964 and early 1965 to determine if it had any interest in additional furnaces. Goldstein stated that it had no interest, ostensibly because there was no room at its plant for the installation of additional furnaces. In actuality, Goldstein had engaged a metal fabricator to copy the Spitz furnace. Several of these copies were installed in Goldstein's Phila-

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[6] Goldstein's research continued through 1965, but apparently was never successful.

[7] Licenses were also obtained by Franklin Smelting in Philadelphia, AMA Metal Company in New York, Minkin Metal Company in Michigan, Luria Brothers, Inc. in Pennsylvania, and Phelps Dodge in Arizona.

delphia facility,[8] and one was sent to AMA Metal Corporation, which had been acquired by Goldstein. Spitz endeavored to obtain clarification of Goldstein's position, and when an unsatisfactory answer was received, Trio charged Goldstein with patent infringement. Although Trio offered licenses for the additional furnaces installed by Goldstein, the offer was refused and Goldstein terminated the license agreement.

In May, 1969, Trio filed suit against Goldstein for willful patent infringement, contributory infringement, and unfair competition. Goldstein's answer denied infringement and asserted as an affirmative defense that the patent was invalid under 35 U.S.C. §§ 101, 102, 103 and 112. After a trial without a jury, the patent was held to have been willfully infringed, but invalid as obvious under 35 U.S.C. § 103. The district court did not rule on the issue whether the patent was invalid under 35 U.S.C. § 112. Trio appealed from the holding of invalidity and Goldstein cross-appealed on the issue of infringement.

VALIDITY OF THE PATENT

We begin this discussion with the pole star proposition that a patent is presumed to be valid and that the burden of proof is on the party alleging invalidity.

Congress provided in 35 U.S.C. § 282 (1970), that: "A patent shall be presumed valid. * * * The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting it." And this Court has recognized that "* * * the burden of proving in-

[8] Applications for permits filed by Goldstein with the air pollution control section of the Philadelphia Department of Health specifically recite that each furnace to be installed by Goldstein is identical to an incinerator which was previously licensed by the Department of Health. The previously licensed incinerator was in fact a furnace provided by Trio.

validity in the face of the presumption is a heavy one." Schmidinger v. Welsh, 383 F.2d 455, 462 n. 10 (3d Cir. 1967); cert. denied, 390 U.S. 946, 88 S.Ct. 1031, 19 L.Ed.2d 1134 (1968). Indeed, invalidity must be demonstrated by clear and convincing proof, Ever-Wear Inc., v. Weiboldt Stores, Inc., 427 F.2d 373 (7th Cir. 1970); General Foods Corp. v. Perk Foods Co., 419 F.2d 944 (7th Cir. 1969), cert. denied, 397 U.S. 1038, 90 S.Ct. 1537, 25 L.Ed.2d 649 (1970); Moon v. Cabot Shops, Inc., 270 F.2d 539 (9th Cir. 1959), cert. denied, 361 U.S. 965, 80 S.Ct. 596, 4 L.Ed.2d 546 (1960).

Because of the special public interest surrounding the issue of patent validity,[9] we have carefully evaluated the record and the district court's findings and conclusions with the above stated precepts in mind.

A. *Obviousness*

As stated above, the district court held that the patent was invalid on the ground that the invention was "obvious." Section 103 provides, in pertinent part: "A patent may not be obtained * * * if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. * * *"

Although Section 103 was enacted in 1952, it was not until 1966 that the Supreme Court definitively construed it in a trilogy of cases. Graham v. John Deere Co., 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966); Calmar, Inc. (Colgate-Palmolive Co.) v. Cook Chemical Co., *id.*;

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[9] Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 330, 65 S.Ct. 1143, 89 L.Ed. 1644 (1945); Royal Typewriter Co. v. Remington Rand, Inc., 168 F.2d 691, (2d Cir.), cert. denied, 335 U.S. 825, 69 S.Ct. 50, 93 L.Ed. 379 (1948); *see generally*, Note, In Rem Validity—A Two-Sided Coin, 59 Geo.L.J. 73, 80-81 (1970).

United States v. Adams, 383 U.S. 39, 86 S.Ct. 708, 15 L.Ed.2d 572 (1966). In *Graham*, the Supreme Court set forth the primary tests and secondary criteria for determining obviousness:

> "[T]he scope and content of the prior art * * *; differences between the prior art and the claims at issue * * *; and the level of ordinary skill in the pertinent art * * *. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." 383 U.S. at 17, 86 S.Ct. at 694.[10]

The *Adams* case illustrates that where all the elements of an invention were known in the prior art but not utilized together, if the combination of the elements produced unexpected results different from the prior art, an invention may be patentable, particularly where the prior art indicates that the procedure utilized by the patent will be unproductive. 383 U.S. at 50-52, 86 S.Ct. 708, *accord* D. Dunner, J. Gambrell, & I. Kayton, Patent Law Perspectives, Current Service, at A.5 (1966-67 Annual Review).

Trio maintained that because the district court did not specifically make the three primary findings referred to in *Graham*, reversal is required. But *Graham* and *Anderson's Black Rock* do not require that the three primary findings be made, but rather, only that the three primary tests be considered in the findings made by the district court. *See* Frantz Mfg. Co. v. Phenix Mfg. Co., 457 F.2d 314, 322 (7th Cir. 1972). Here, the trial judge's findings indicate that the scope of the prior art

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[10] With regard to the primary tests, the Supreme Court has "admonished that 'strict observance' of those requirements is necessary." Anderson's Black Rock, Inc. v. Pavement Salvage Company, Inc., 396 U.S. 57, 90 S.Ct. 305, 24 L.Ed.2d 258 (1969).

includes the reclamation of scrap wire, the manufacture of charcoal, the control of air pollution, and the incineration of tree stumps and sawdust. The content of the prior art was found to include portable furnaces, fixed furnaces, conical furnaces, and afterburners. The analysis of the prior art performed by the district court clearly highlights the differences between the claims at issue and the prior art as well as the similarities.

Although it would have been preferable for the trial judge to have set forth his findings with regard to the ordinary level of skill in the pertinent art with greater specificity, the findings actually made indicate that an ordinary person skilled in the art would be aware of the use of fixed furnaces operated at high temperatures to process scrap wire, the use of portable furnaces operated at low temperatures with limited air to produce charcoal, and the use of afterburners to cleanse the effluent gases. Furthermore, the district court made specific findings with respect to the needs of the industry and the commercial success of the invention. Accordingly, we held that the district court adequately complied with the requirements of *Graham*. We have examined the record with respect to the findings of the district court discussed above, and find substantial evidence supporting them.[11]

The ultimate legal conclusion of the district judge that the patent was invalid under Section 103 carries with it the necessary implication that the differences between the invention *sub judice* and the prior art are

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[11] Trio has assigned as error the admission into evidence of the opinion testimony of Dr. Edward Adler on the ground that he was not qualified under the rule of Arnold v. Loose, 352 F.2d 959 (3d Cir. 1965), to testify as an expert. However, Trio has not indicated in what manner such testimony prejudiced it. In any event, even excluding such testimony, the evidence in the record is sufficient to support the findings of the trial judge. Therefore, the error, if any, was harmless under Rule 61, Fed.R.Civ.P.

such that the subject matter as a whole would have been obvious to a person having ordinary skill in the pertinent art. It is here that we believe the district court erred.

When the patent examiner approved the Spitz patent, he cited seven prior patents he considered to be in the prior art. These patents disclosed, *inter alia*, an apparatus and method for reclaiming copper wire,[12] an afterburner to deodorize effluent gases,[13] an apparatus for the odorless burning of refuse,[14] a portable conical incinerator for burning tree stumps,[15] and a portable charcoal kiln which disclosed the concept of limited access of air.[16] Despite these references, the examiner concluded that the invention was unobvious, and such conclusion is presumptively correct.

To rebut this conclusion, Goldstein cited eight additional patents and three literature references. In holding the patent invalid, the district court relied on five of the patents that were before the examiner (discussed *supra*), four of the patents cited by Goldstein,[17] and the three literature references.[18] A careful reading of the

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[12] Wilkins Patent No. 2,815,278, teaching the use of a high temperature furnace with an afterburner.

[13] Breitweiser Patent No. 1,773,256.

[14] Cummings Patent No. 1,528,816.

[15] Morgan Patent No. 1,082,644.

[16] Lovelace Patent No. 266,850.

[17] Edwards Patent No. 292,635 (conical charcoal oven; slow combustion); Kurre Patent No. 245,179 (stump burner); Middaugh Patent No. 1,199,403 (sawdust burner designed for rapid burning utilizing air-cooling to prevent overheating); Cassity Patent No. 1,126,388 (stump burner).

[18] Two of the literature references concern the use of afterburners to reduce air pollution; the third refers to refuse burning in apartment house incinerators and teaches both the use of an afterburner and the control of air in the combustion chamber to reduce pollution.

patents and literature reference cited by Goldstein indicates that they are merely cumulative to the references before the examiner. As such, they add no new material from which the district court could conclude that had the examiner read them, he would have held that the invention was unpatentable for obviousness. None of the references cited by the district court, individually or taken as a whole, indicate that organic insulation can be burned in a commercially feasible manner from scrap wire at low temperature without oxidizing or melting the wire.[18a] And even when all the references are viewed in conjunction with all the testimony taken at the trial, the evidence still falls short of "clear and convincing" proof that the method disclosed by the patent would have been obvious to a person with ordinary skill in the relevant art at the time Spitz developed his process. This is particularly so where, as here, the prior art indicates that high-temperature burning, rather than the low-temperatures employed by Spitz, is a more advantageous means of accomplishing the intended result. United States v. Adams, *supra*.

[18a] It could be argued that it would be obvious to a person with ordinary skill in the art of wire reclamation to burn the insulation from wire at a temperature lower than the melting point of the wire, and that once this solution were arrived at, the method would be obvious in view of the prior art. Although this argument has superficial appeal, it is not supported by the facts of this case. Indeed, Goldstein, after being apprised of Spitz's concept, was still unable to reduce it to practice, prior to the issuance of the patent, without first obtaining instruction from Trio.

In any event, invention might lie in the realization of the exact problem to be solved. When the identification of the problem is not obvious, the invention can be patentable, even though the solution to the problem would then be obvious. Eibel Process Co. v. Minnesota & Ontario Paper Co., 261 U.S. 45, 43 S.Ct. 322, 67 L.Ed. 523 (1923). *But cf.* Graham v. John Deere Co., *supra*, 383 U.S. at 25, 86 S.Ct. 684. The proper test is whether the process as a whole would have been obvious to one of ordinary skill in the art, not whether it would be "obvious to try" a certain solution to the problem at hand. In re Dien, 371 F.2d 886, 54 CCPA 1027 (1967).

Goldstein argues, however, that the method patented by Spitz was obvious at the time the invention was made because each of the steps described in the Spitz claims was well known in the prior art. However, the essence of the Spitz invention did not lie in the individual steps, but rather, consisted of combining the steps in an unsuggested manner into a process that would achieve a substantially different function and result from the other processes of which the individual stages were a part.[18b] Where such occurs the invention of a process may be patentable despite the fact that the individual phases were known in the art. *See* Shaw v. E.B. & A.C. Whiting Co., 417 F.2d 1097 (2d Cir. 1969); *cf.* Anderson's Black Rock Inc. v. Pavement Salvage Co., *supra*. *See generally*, D. Dunner, J. Gambrell, I. Kayton, *supra*, at Dev. A.1-3 to -7 (Developments 1970).[19] It is the subject matter as a whole which must be considered in determining obviousness. In re Wiggins, 397 F.2d 356, 55 CCPA 1356 (1968).[20]

[18b] The functions performed by the devices in the prior art include the manufacture of charcoal, essentially a distillation process, and the burning of refuse, such as sawdust and tree stumps, a combustion process in which there is no attempt to preserve any sort of unoxidized by-product. In contrast, the function of the Spitz method is to burn insulation while preserving intact as the primary product No. 1 grade scrap wire. And it follows that here, the result is different in that the end product, scrap wire, is preserved in its original physical and chemical state, whereas the other devices produced products in which the physical or chemical state of the subject matter was substantially altered.

Examination of the two methods of producing scrap wire known in the prior art shows a facial similarity in function and result. But closer analysis demonstrates that the result of the Spitz process is not the mere production of scrap wire, but the production of such wire in a more economical manner, in that operating and material handling costs are reduced by resort to this method.

[19] These citations all refer to combination apparatus patents, but the principles apply equally well to a multi-step process claim.

[20] The *Wiggins* opinion was written by Justice Clark, who authored Graham v. John Deere Co., *supra*.

B. *Specific disclosure*

Although Goldstein asserted in its answer that the patent was invalid for failure to comply with 35 U.S.C. § 112,[21] the district court did not decide this issue. Here, Goldstein urges that the holding of invalidity may be affirmed on this ground alone. In support of its argument, Goldstein contends that Spitz did not disclose certain shortcomings of his invention, Spitz fraudulently misrepresented both the shortcomings of the prior art and the result reached by the use of his invention, the patent fails to teach the necessity to observe the presence or absence of smoke, the patent does not describe any specific temperature ranges, and that the patent does not set forth the best mode of operation.

With regard to the allegations of omissions and misrepresentations, we hold that, on the facts of this case, such were not material, in that they did not relate to the statutory conditions of patentability: novelty, 35 U.S.C. § 102; obviousness, 35 U.S.C. § 103; or utility, 35 U.S.C. § 101.[22] In this respect, Monsanto Co. v. Rohm & Haas Co., 456 F.2d 592 (3d Cir. 1972), is distinguishable because there the misrepresentation directly related to anticipation (novelty), obviousness, and utility, and the patent might not have issued had full disclosure been made.

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[21] Section 112 provides, *inter alia*:

> "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person *skilled in the art* to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention." (emphasis added)

[22] Arguably, the allegation regarding the inability of the invention to cope with metal-sheathed wire or aluminum wire bears on utility, but when the misrepresentations are measured against the appropriate standards, it becomes obvious that even if fuller disclosure had been made, Spitz's process still would have been patentable.

The other Section 112 arguments relate to the lack of disclosure or vagueness of the operating parameters of the process. However, as distinguished from Section 103, dealing with obviousness, Section 112 refers to persons skilled in the art, and the disclosure must be evaluated with respect to such persons. Patent specifications need not be so detailed as "production specifications." In re Gay, 309 F.2d 769, 50 CCPA 725 (C.C.P.A. 1962).[23] Regarding the allegations that the best mode of operation was not disclosed, the statute as interpreted by the courts requires only that the best mode of operation known to the inventor at the time the application was filed be set forth. *Id.* The examiner determined that the disclosure of the patent was adequate, and a review of the record as a whole indicates that the evidence falls short of "clear and convincing" proof that the specification fails to teach a person skilled in the art how to operate the process.[24]

C. *Late claiming and Misuse*

In its brief to this court, Goldstein urges that the patent should be held invalid because of late claiming under 35 U.S.C. § 132, and unenforceable because Trio misused the patent in a variety of respects. However, late claiming and misuse are affirmative defenses which must be pleaded and proved. 35 U.S.C. § 282 (1970). Because Goldstein's answer to the complaint did not raise

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[23] *See also* Bennett v. Halahan, Aronson & Lyon, 285 F.2d 807, 48 CCPA 782 (1961).

[24] The temperature of the burning pile of scrap wire is limited by the melting point of the metal, which would be known to a person skilled in the art. The patent also states that the gases emitted from the afterburner "are virtually colorless," and a person skilled in the art would be able to determine the proper temperature for afterburning easily by observing the presence or absence of smoke. Although the length of the afterburner is not specified, the patent drawings indicate that it is to be approximately equal to the height of the cone. In any event, such is not a critical part of the invention.

these issues, we hold these defenses to have been waived under Rule 8(c), Fed.R.Civ.P., and need not consider them further.

WILLFUL INFRINGEMENT OF THE PATENT

Goldstein contends that the district court's conclusion of willful infringement is erroneous as a matter of law. The evidence disclosed that the only deviation in Goldstein's process from the method described in the patent was that Goldstein ignited the pile of wire prior to superimposing the furnace, whereas the patent stipulates the reverse order of these steps. Trio asserts that it is immaterial whether the pile is ignited before or after superimposition of the furnace, and that the conclusion of the district court is therefore correct under the doctrine of equivalents.

The Supreme Court explained the doctrine of equivalents and the conditions for its invocation in Graver Tank & Mfg. Co. v. Linde Air Products Co.:

> "The essence of the doctrine is that one may not practice a fraud on a patent. * * * 'To temper unsparing logic and prevent an infringer from stealing the benefit of the invention' a patentee may invoke this doctrine to proceed against the producer of a device 'if it performs substantially the same function in substantially the same way to obtain the same result.'" 339 U.S. 605, 608, 70 S.Ct. 854, 856, 94 L.Ed. 1097 (1950).

Here, by reversing the order of the steps of the process, there is produced "substantially the same function" (ignition of the insulation in the pile of scrap wire in preparation for burning) "in substantially the same way" (burning the insulation at low temperature) "to obtain the same results" (Number 1 grade scrap copper wire). Unless Trio is barred from asserting the doctrine of

equivalents because of "file-wrapper estoppel," [25] the conclusion that the patent was infringed must be affirmed.

The doctrine of file-wrapper estoppel provides that where a patentee abandons or redrafts a claim more narrowly to avoid rejection on the basis of prior art, then the substance of the claim as originally drafted that was thereby excluded cannot be recaptured by resort to the doctrine of equivalents. Exhibit Supply Co. v. Ace Patents Corp., 315 U.S. 126, 62 S.Ct. 513, 86 L.Ed. 736 (1942). Graham v. John Deere Co., 383 U.S. 1, 33, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966); Schmidinger v. Welsh, 383 F.2d 455 (3d Cir. 1967), cert. denied, 390 U.S. 946, 88 S.Ct. 1031, 19 L.Ed.2d 1134 (1968); Chemical Construction Corp. v. Jones & Laughlin Steel Corp., 311 F.2d 367 (3d Cir. 1962).

The doctrine is based on the theory that the prior art is either in the public domain or already patented, so that the patentee may not claim it as part of his invention. By redrafting or abandoning a claim in the face of a prior art rejection, the patentee is conceding that he has not invented what he thereby disclaims, and therefore will not be heard to assert, at a later date, what he disclaimed as his invention. Accordingly, for "file-wrapper estoppel" to become operable, it is necessary, at the least, that a claim have been narrowed to avoid the prior art. Bishman Mfg. Co. v. Stewart-Warner Corp., 380 F.2d 336 (7th Cir.), cert. denied, 389 U.S. 897, 88 S.Ct. 216, 19 L.Ed.2d 214 (1967).

Here, the claims were redrafted, not because they trespassed upon the prior art, but because they were con-

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[25] The file wrapper is "[t]he Patent Office file consisting of the original application, Office Actions, amendments and other written matter pertaining to the filing and prosecution of the application, and the issuance of the patent thereon. The documents are those actually exchanged between the applicant and the Patent Office. The file wrapper provides the written history of the application in the Patent Office. * * *" A. Smith, *supra*, at 2.

sidered misdescriptive in view of the specification of the patent. The rejection here was a technical matter based on the Rules of Practice of the Patent Office, and had nothing to do with the question whether the matter rejected was patentable. In such a situation, it would not be equitable to deprive a patentee of the full fruits of his invention because of a formalistic rule of the patent office. *See* Peterson Filters & Engineering Co. v. Eimco Corp., 155 U.S.P.Q. 89 (D. Utah, 1967), aff'd 406 F.2d 431, 438 (10th Cir. 1968).

For these reasons, we hold that, on the basis of the record developed below, the district court's conclusion of law that the patent had been infringed was not incorrect.

Goldstein next asserts that even if it were held to be an infringer, such infringement was not willful because it sought the advice of patent counsel as to the patentability of Spitz's invention. However, the opinion of counsel was not sought after the patent issued, even though more than a year elapsed after issuance before Goldstein began to infringe. This alone is enough to support a conclusion of willfulness, Maxon Premix Burner Co. v. Mid-Continent Metal Prods. Co., 279 F.Supp. 164 (N.D. Ill. 1967), and when viewed in conjunction with the totality of Goldstein's actions, including sending blueprints and operating instructions to a foreign company, we cannot say that the trial court's conclusion in this regard was erroneous.

CONCLUSION

The judgment of the district court with regard to the validity of the patent will be reversed, the judgment with regard to willful infringement will be affirmed, and the cause will be remanded for further proceedings consistent with this opinion. Costs taxed in favor of Plaintiff, Trio Process Corporation in both appeals.

APPENDIX

Feb. 5, 1963 A. W. SPITZ 3,076,421

METHOD OF INCINERATING WIRE SCRAP

Filed Oct. 29, 1958

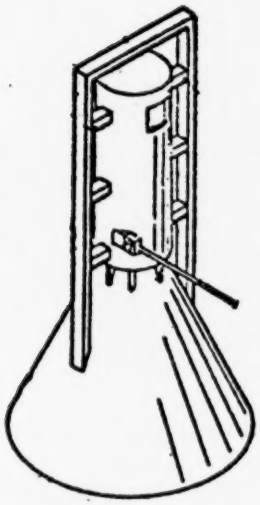

FIG. 1

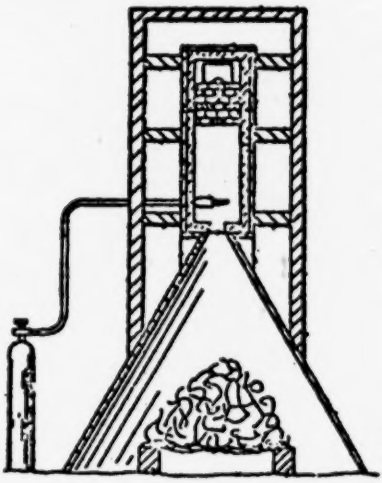

FIG. 2

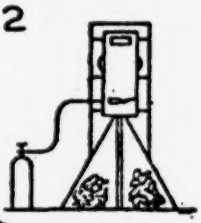

FIG. 4

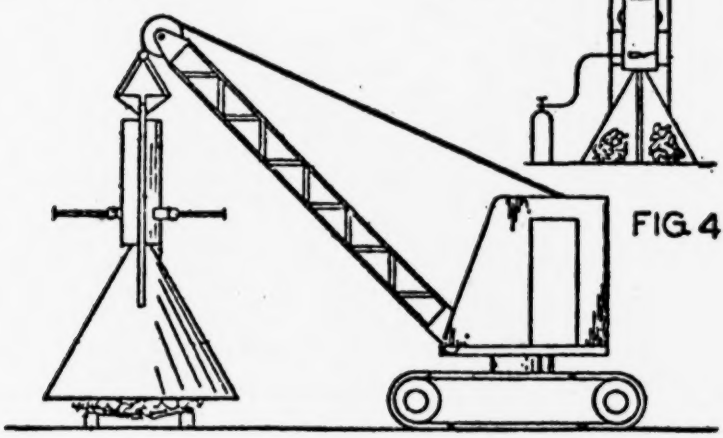

FIG. 3

INVENTOR.
ALBERT W. SPITZ

BY Harry Langsam
ATTORNEY

[A5778]

APPENDIX C

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

Civil Action No. 38,166

TRIO PROCESS CORPORATION,
Plaintiff

v.

L. GOLDSTEIN'S SONS, INC.,
Defendant

MEMORANDUM AND ORDER

FULLAM, J. July 17, 1973

Plaintiff has a patent (No. 3,076,421) covering a process for burning away the insulation on scrap copper wire without melting the copper. The process takes place in a conical furnace, equipped with an afterburner. This makes it possible to limit the amount of air in the combustion chamber, thus permitting oxidation of the insulating material at a relatively low temperature. The resulting gasses and fly-ash flow into the gas-fired afterburner chamber, which operates at a much higher temperature, resulting in complete combustion and relatively pollution-free emissions.

Plaintiff supplied several of these furnaces to the defendant under a licensing arrangement, at a substantial fee per unit. After a period of successful operation, the defendant surreptitiously caused copies of the device to be manufactured for its own account, and put these additional furnaces in operation in its various plants. Plaintiff brought this action for patent infringement, and defendant challenged the validity of the patent.

After a lengthy trial, this Court held that the patent was invalid, but that, if valid, defendant was clearly guilty of infringement. On appeal, the Third Circuit held that the patent was indeed valid, affirmed this Court's finding of infringement, and remanded for further proceedings to afford appropriate relief.[1]

By agreement of counsel, this Court entered a decree on January 31, 1973, referring the calculation of damages to a master selected by the parties, and granting injunctive relief against further infringement. Thereafter, plaintiff filed a petition alleging that the defendant is continuing to infringe the patent, and is in contempt of this Court's decree of January 31, 1973. A show cause order was issued, and a hearing has been held on April 2, 1973.

The facts are not in dispute. The only issue to be resolved is whether the process which the defendant is admittedly carrying out represents an infringement of the patent and therefore a violation of the injunctive decree. I am satisfied that it does.

Plaintiff's patent describes the afterburner combustion chamber as being lined with refractory material, thus permitting high temperature burning of the effluent from the conical portion of the device. After the Court of Appeals' decision was handed down, the defendant altered its devices by providing a plain metal afterburner combustion chamber, rather than one lined with refractory brick.

Plaintiff contends that, in a broad sense, even the plain metal covering of the afterburner chamber can be regarded as "refractory," and thus literally within the express terms of the patent. The defendant argues, on the other hand, that the term "refractory material" has an

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[1] 466 F.2d 66 (1972); *cert. den.* Nov. 6, 1972.

accepted meaning in industrial circles, and was obviously intended in its technical sense in the patent description. I find it unnecessary to resolve this dispute. We are dealing here with a process patent. In all material respects, defendant's method is identical to the method patented by the plaintiff.

The Court of Appeals succinctly described the patented method as follows:

> "The patent which forms the subject matter of this case teaches a process of removing organic insulation from scrap wire. The method basically consists of the following steps:
>
> "1. Igniting a pile of scrap wire and organic insulation;
>
> "2. Superimposing a bottomless combustion chamber over the ignited pile;
>
> "3. Admitting air at a limited rate to the ignited pile and simultaneously air-cooling the outside of the combustion chamber so that the temperature of the ignited pile remains below the melting point of the wire;
>
> "4. Passing the products of the combustion—smoke and hydrocarbon gases—through an afterburner, into which is added fuel and air, so that the smoke and gases will be substantially oxidized." (461 F.2d 66 at p. 68.)

Every step of this method is included in the defendant's present operations. The only difference in the device used is that whereas the device contemplated by plaintiff's patent has a vertical afterburner chamber which is refractory-lined, the defendant's is unlined, somewhat longer, and extends horizontally over much of its length. But the process, the method, is identical.

The remaining question is the nature of the relief which should now be granted to the plaintiff. Several conferences were held in connection with the entry of the January 31, 1973 injunctive decree. Plaintiff's counsel had sought a decree which would enjoin the defendant from practicing the method covered by the patent; defendant argued that the decree should be limited to prohibiting infringement of the patent. The decree which was entered conforms to the defendant's suggested version.

In the course of the conferences, defendant's counsel repeatedly assured opposing counsel and the Court that the defendant had substantially altered its entire method of removing the insulation from copper wire, and that its present operations could not reasonably be supposed to infringe upon the patent. However, no specific information was supplied confirming the nature of defendant's present operation.

At the hearing on April 2, 1973, it developed that plaintiff, two weeks earlier, had sought permission from the defendant to enter upon the defendant's property in order to observe the defendant's operation; permission was refused. The defendant nevertheless contended at the hearing that plaintiff's application for an adjudication of contempt should be dismissed because plaintiff's witnesses lacked first-hand knowledge of the actual workings of the defendant's present devices. (The requisite proof was supplied by defendant's own affidavits.)

Under these circumstances, I am unable to accept the defendant's argument that the defendant has been acting in a good faith belief that its conduct did not violate the injunctive decree. Throughout this entire litigation, the defendant's conduct has followed a consistent pattern, directed toward acquiring the benefits of plaintiff's method, in disregard of plaintiff's patent rights. I have

concluded that defendant's infringement is fairly obvious, but even if this view is incorrect, it is at least clear that no reasonable person could readily conclude that defendant's method does not infringe. Thus, at the very moment the defendant, through its counsel, was proposing the language which ultimately was embodied in the injunction, and that the time the injunction was entered, the defendant knew or should have known that it was already in violation of the injunction. Its subsequent conduct makes it clear that this was actual knowledge.

Taking into account the entire history of this litigation, I have concluded that the defendant must be enjoined permanently (during the life of plaintiff's patent) from conducting operations for the removal of insulation from scrap wire through oxidation or combustion, except with leave of this Court after a judicial determination of non-infringement. Determination of damages and penalties for violation of the injunction will be held in abeyance, pending resolution of the other damage claims before

ORDER

AND NOW, this 17th day of July, 1973, it is ORDERED:

1. That the defendant Metal Bank of America, Inc. (successor to L. Goldstein's Sons, Inc.) is in contempt of this Court for having violated the injunction entered in this case on January 31, 1973.

2. That, until the expiration of United States Patent No. 3,076,421, the defendant Metal Bank of America, Inc. and its officers, agents, servants, employees and attorneys, and all persons in active concert and participation with them are enjoined from practicing any process of metal recovery by the removal of insulation or other covering from scrap wire through oxidation or combus-

tion, except pursuant to such further order or orders of this Court as may hereafter be entered, upon satisfactory proof that the method to be used does not infringe upon the rights granted by said patent.

3. That the determination of the amount of actual damages sustained by the plaintiff by reason of defendant's violations of the injunctive decree of this Court is referred to the special master heretofore appointed on January 31, 1973, for recommendation and report pursuant to said order of appointment.

4. That all other penalties to be imposed upon the defendant for said contempt shall be hereafter determined by this Court in its final disposition of the case after receipt of the report and recommendations of the master.

/s/ John P. Fullam, J.

APPENDIX D [*Trio Process* II]

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

No. 73-1821

TRIO PROCESS CORP.

v.

L. GOLDSTEIN'S SONS, INC.,
THE METAL BANK OF AMERICA, INC., etc.
Appellant.

Appeal from the United States District Court
for the Eastern District of Pennsylvania

Civil Action No. 38,166

Submitted Under Third Circuit Rule 12(6)

March 12, 1974

Before: ALDISERT, GIBBONS and ROSENN,
Circuit Judges.

JUDGMENT ORDER

After consideration of all contentions raised by appellant, it is

ADJUDGED AND ORDERED that the judgment of the district court be and is hereby affirmed and the motion to dismiss is denied.

Costs taxed against appellant.

BY THE COURT,

/s/ R. J. Aldisert

Circuit Judge

Attest:

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Thomas F. Quinn, Clerk

DATED: March 12, 1974

APPENDIX E

IN THE UNITED STATES DISTRICT COURT
FOR THE
EASTERN DISTRICT OF PENNSYLVANIA

Civil Action No. 38,166

TRIO PROCESS CORP.,
Plaintiff

v.

L. GOLDSTEIN'S SONS, INC.,
Defendant

OPINION AND ORDER

FULLAM, J. April 18, 1975

Three motions are before the Court in this patent infringement action: (1) plaintiff's motion to confirm the Master's report on damages, over the objections of defendant; (2) plaintiff's motion for leave to file an amended or a supplemental complaint, adding new counts and additional defendants; and (3) the Master's petition for allowance of fee.

Much of the background of this case is set forth in *Trio Process Corp.* v. *L. Goldstein's Sons, Inc.*, 461 F.2d 66 (3d Cir. 1972), *cert. denied* 409 U.S. 997 (1972). There, the Court of Appeals held that the plaintiff's patent of a process for removing insulation from scrap wire ("the Trio process") was valid and affirmed this Court's earlier finding that, if valid, the patent had been willfully infringed by defendant.

On January 31, 1973, I entered an Order enjoining further infringement of the patent, and referred to a Master the task of computing the amount of damages due

plaintiff from defendant for the infringement that had occurred. On July 17, 1973, following a hearing, the defendant was found in contempt for having violated that injunction (by practicing a metal reclaiming method which differed from the patented method in certain immaterial respects), and the provisions of the injunction were broadened to guard against the possibility that, through further variations in its methods, defendant might again intentionally or inadvertently infringe the Trio patent.[1] The calculation of the actual damages sustained by plaintiff as a result of defendant's violation of the January 31, 1973, decree was also referred to the Master. Determination of what penalties should be imposed in connection with defendant's contempt was deferred pending receipt and review of the Master's report.

The proceedings before the Master lasted over a year and produced more than 3400 pages of testimony. The Master filed his report with the Court on June 13, 1974. The report concluded that primary damages adequate to compensate plaintiff for defendant's infringing use (including the use during the contempt period) should be assessed at $1,564,804, and recommended that this amount be trebled, as permitted by 35 U.S.C. § 284. Trebled damages plus interest would exceed $5,062,054.

1. *Plaintiff's Motion to Confirm the Master's Report, and Defendant's Objections Thereto*

35 U.S.C. § 284 provides that damages in patent infringement actions shall be adequate to compensate for the infringement "but in no event less than a reasonable royalty for the use made of the invention by the infringer." In determining what would constitute a reasonable royalty for the use of the patented Trio process, the Master adopted the basic method of computation pro-

[1] This Court's Order of July 17, 1973 was affirmed on appeal (Appeal No. 73-1821, filed Mar. 12, 1974).

posed by plaintiff, and rejected that suggested by defendant. The defendant contended that an established royalty had been fixed by the plaintiff's licensing program, and that damages should be calculated using that as a basis. However, the Master's determination of a reasonable royalty was based, instead, on the amount of "cost saving or substantial benefit" realized through the use of the Trio process, and on a "fair and equitable" division of this amount between the patentee and the infringer.

In the proceedings before the Master, plaintiff's proof of damages was developed through the testimony of two expert witnesses, and proceeded along the following lines: Mr. Samuel Letvin, an engineer, testified that he had made a comparative study of the productive capacities of the Trio-type furnaces (which utilized the patented Trio process) used by defendant [2] and another type of furnace, known as United Wire Reclaimer Model G-466, the operation of which did not constitute an infringing process.[3] Although Letvin measured the capacity of Trio-type furnaces by conducting actual test runs, his determination of the capacities of Model G-466 furnaces was based principally on written descriptions, operating instructions, and illustrations of that model supplied by its manufacturer.

Letvin concluded that two Model G-466 furnaces would be required to process the same daily output of wire scrap that one of defendant's Trio-type furnaces could

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[2] Because Letvin did not have access to the defendant's Trio furnaces, his study was based on tests performed with Trio furnaces at Franklin Smelting & Refining Company. Letvin adjusted his test results to reflect the smaller size of defendant's furnaces, calculated to be 74.7 percent the capacity of those at Franklin Smelting.

[3] The model G-466 furnace was the furnace which defendant proposed to use in its motion for leave to practice a certain method, filed August 14, 1973. That motion was unopposed, and the Court granted it.

process, if operated at full capacity. He then devised a "basic plant layout" for the operation of 10 Model G-466 furnaces, which, according to his capacity comparison, would have the same overall productive capability as a plant with 5 Trio-type furnaces. (Apparently, this size plant was selected because defendant had conducted metal reclaiming operations at two locations, one with four Trio-type furnaces, the other with six.) According to Letvin, operation of this hypothetical plant would require 11 employees, working at varying rates of pay, with the annual "direct labor" cost amounting to $117,260. To this was added an "indirect labor" charge of $306,987, calculated by applying to the direct labor cost an average overhead rate of 261.8%, the rate that actually obtained at defendant's business, as determined by its certified public accountants, Coopers & Lybrand. Thus, the total annual labor cost of operating the hypothetical 10-furnace plant was $424,247. Letvin also gave estimates of the cost of capital investment needed to run such a plant.

Mr. Marcus Finnegan, a patent attorney, was called by plaintiff to offer his opinion as to a reasonable royalty to be charged for the use of the Trio process, assuming Letvin's conclusions and certain other facts to be true. The other facts related to the (non-hypothetical) size and cost of the labor crew employed by Franklin Smelting & Refining Company to operate its five Trio-type furnaces. From this information, the annual direct labor cost for the use of five Trio-type furnaces was determined to be $44,304, and, applying to this defendant's overhead rate of 261.8%, the total labor cost came to $160,292.

On the basis of the comparative labor cost figures, the annual labor savings to be realized by using five Trio-type furnaces in place of 10 Model G-466 furnaces, having the same overall capacity, appeared to be $263,955,

or a saving of $52,791 per Trio-type furnace per year. In Finnegan's opinion, a reasonable royalty for use of the Trio-type furnace would be two-thirds of this savings, or about $35,000 per furnace per year. Finnegan stated that the two-thirds fraction was appropriate in view of other advantages which the Trio process appeared to enjoy over the use of Model G-466 furnaces.[4] He also took into account the fact that defendant made extensive use of the Trio process, promoted its use by advertising its advantages, utilized the entire patented process without significantly improving it, and learned how to exploit the process while a licensee.

The Master accepted all of the steps in this analysis except for the last one, pertaining to the division of the $52,791 saving (per Trio-type furnace per year) between licensor and licensee. In the Master's opinion, Finnegan's recommended royalty equal to two-thirds of that saving was too great because (i) while Letvin's comparison of the two types of furnaces was made with respect to full capacity, there was doubt that defendant always operated its Trio furnaces at full capacity; (ii) Finnegan gave "undue weight" to the advertising advantages conferred by the use of the Trio process; and (iii) Finnegan improperly considered the willfulness of defendant's infringement and certain other "aggravating factors" relevant to the discretionary trebling of damages but not to the determination of a reasonable royalty intended solely as a compensatory measure. The Master concluded that a fair and reasonable royalty was $26,390 per Trio furnace per year. This divided the saving sup-

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[4] Among these advantages were: (1) lower capital requirements ($151,000 for a plant with five Trio furnaces versus $337,400 for a plant for 10 Model G-466 furnaces), testified to by Letvin; (2) 100% metal recovery (versus 96% recovery in the Model G-466 process), according to defendant's advertisements of its Trio furnace operations; (3) greater fuel economy, testified to by Letvin.

posedly realized by users of the Trio process equally between licensor and licensee.

Finally, the Master found that between late 1964 and January 1973, defendant operated from three to ten infringing furnaces a year, with the total infringing use amounting to almost 70 furnace years; and that for the contempt period, February through July 1973, defendant's infringing use measured 4.58 furnace years. For each year, the number of infringing furnaces used by defendant in that year was multiplied by $26,390, the reasonable royalty per furnace year. The Master then reduced the resulting products to reflect the fact that the lower labor rates of earlier years would produce smaller labor savings and a more modest reasonable royalty.[5] He then trebled these primary damages for each infringing year, and added interest on the primary amounts running at 6% from the end of each such year.

Rule 53(e)(2) of the Federal Rules of Civil Procedure provides that, in non-jury actions, the Court shall accept the Master's findings of fact unless clearly erroneous. Indeed, a district court commits reversible error if it fails to acquiesce in such findings when a review of the record shows them to be supported by substantial evidence and not clearly erroneous. *Anderson* v. *Mt. Clemons Pottery Co.*, 328 U.S. 680 (1946). However, this presumption operates only in favor of the Master's findings of facts. On matters of law, the Master's conclusions deserve careful consideration, but they carry no presumption of correctness. *In re Mifflin Chemical Corp.*, 123 F.2d 311 (3d Cir. 1941), *cert. denied* 315 U.S. 815 (1942). Thus, the problem of reviewing the Master's report, now faced by this Court, is essentially the same as the problem that an appellate court routinely faces

[5] The annual labor saving figure of $52,791 was computed on the basis of 1973 wage rates.

when it reviews a district court's findings of facts and conclusions of law.

The Master correctly concluded that a reasonable royalty had not been fixed by plaintiff's licensee program. The leading case on the subject of established royalty was once *Rude* v. *Westcott*, 130 U.S. 152 (1889). Although the rule of that case has not been used much in modern judicial analysis of damages for patent infringement, it remains a correct statement of the law:

> "Sales of licenses, made at periods years apart, will not establish any rule on the subject and determine the value of the patent. Like sales of ordinary goods, they must be common, that is, of frequent occurrence. . . In order that a royalty may be accepted as a measure of damages against an infringer, who is a stranger to the license establishing it, it must be paid or secured before the infringement complained of; it must be paid by such a number of persons as to indicate a general acquiescance in its reasonableness by those who have occasion to use the invention; and it must be uniform at the places where the licenses are issued." 130 U.S. at 165.

It is undisputed that only four licenses were granted to three licensees by plaintiff before the start of defendant's infringement. In each case, plaintiff sold a furnace and a license to practice the Trio process for the life of the furnace.[6] There was substantial evidence to support the Master's findings with respect to the amounts of the license transactions. Deducting $7,000, the cost of the furnace, from each transaction, one obtains the following royalties for the right to practice the Trio

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[6] The average life of a Trio furnace is five years, although apparently this can be extended through continual replacement and repairs.

process for the life of the furnace: $13,000 (September 1969, to Minkin Metal Company); $13,000 (January 1960, to L. Goldstein's Sons, Inc., defendant's predecessor); $8,000 (May 1960, again to L. Goldstein's Sons, Inc.); $13,000 (May 1962, to A. M. A. Metals Company). These licenses satisfy neither the numerosity nor the uniformity requirement of the *Rude* test. *Cf. Wallace & Tiernan Co.* v. *City of Syracuse*, 45 F.2d 693 (2d Cir. 1930).

Defendant argues that the *Rude* criteria apply only to cases where a plaintiff-patentee relies on a royalty established by his licensing program as a measure of damages against a defendant-infringer; and that in cases like the one at bar, where the infringer seeks to limit damages by the patentee's licensing history, the patentee is strictly bound by the terms of even a single license agreement, unless he can demonstrate that for some reason the royalty provided therein did not reflect his judgment as to the amount of a reasonable royalty.[7] Although support for this position may be found in a literal reading of the *Rude* test, quoted above, courts have applied the test to negate the existence of an established royalty to the disadvantage of infringers as well as patentees. *See, e.g., Faulkner* v. *Gibbs*, 199 F.2d 635 (9th Cir. 1952).

The best approach to the problem of assessing damages for patent infringement is to recognize that while a prevailing royalty rate may be probative of what con-

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[7] Even if this statement of the law were accepted as correct and applied to the facts of the instant case, plaintiff would not be precluded from demanding damages in excess of $13,000 per furnace life. The Master found that the Trio licenses issued before the start of defendant's infringement contained unreasonably modest royalty terms, designed to establish the use of the Trio process among secondary metal processors. This finding is supported by the testimony of Albert Spitz, inventor of the patent and co-principal of Trio Process Corporation.

stitutes a reasonable royalty, it is wrong to uncritically accept that figure.

> "The court must consider the economic ambience of that statistic; special circumstances may explain why that particular rate was depressed or lower than others.
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> "[Where] there is an absence of meaningful evidence about such obviously pertinent factors as the relative economic positions of the licensor and the licensee at the time the particular royalty was negotiated, in terms of their respective bargaining strength and their competitive status inter se; the economics of the market for the particular product before and at the time the particular royalty was negotiated; the character of the particular product itself, as either new or commercially accepted, at the time the particular royalty was negotiated; the past performance of the licensed product in terms of process-bearing and the degree of its commercial success; and many other similar features that would enable the court to make a sound business-like evaluation . . . bare data as to a royalty rate and the cursory information as to the nature of a particular license transactions are gravely deficient in probative value." *Georgia-Pacific Corp.* v. *U. S. Plywood Corp.*, 318 F.Supp. 1116, 1140 (S.D.N.Y. 1970), *modified* 446 F.2d 295 (2d Cir. 1971), *cert. denied* 404 U.S. 870 (1971).

35 U.S.C. § 284 provides that the patentee shall recover, at a minimum, a "reasonable royalty" for the use of his patent. There is no simple formula by which to calculate such a measure of damages. The many factors which are relevant to a determination of a reasonable royalty in a given case are set forth in the *Georgia-Pacific* opinion. As already noted, one considera-

tion may be the royalty rate set by the patentee's existing licenses, interpreted in light of the surrounding circumstances affecting its validity as a true measure of reasonableness. Defendant would have damages based solely on this consideration. Plaintiff, on the other hand, has placed primary reliance on another consideration relevant to the determination of a reasonable royalty, namely, the economic advantages of the patented process over the non-infringing processes available to the infringer. The Master found that the Trio process offered labor-saving benefits of $52,791 per furnace year over a competing method of metal reclamation, and that finding is not clearly erroneous.[8]

In considering these and other factors relevant to the determination of a reasonable royalty, the guiding principle is that the amount fixed should be a measure of what the patentee actually lost, not what the infringer gained.

> "[T]he present statutory rule is that only 'damages' may be recovered. These have been defined

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[8] Defendant has attacked on numerous grounds the Master's almost total acceptance of plaintiff's proof of the labor-saving figure. The principal objection is to plaintiff's choice of the G-466 furnace as a basis for comparison with the Trio process. It suffices to say that defendant was free to introduce whatever evidence it wanted to demonstrate that another method of metal reclamation would have compared more favorably, but failed to. The Master did not abuse his discretion by refusing to permit defendant to discover through plaintiff's witnesses the possible existence of more efficient alternatives. And defendant's suggestion that there may exist alternatives superior to the G-466 furnace is somewhat undermined by the fact that defendant selected that furnace for its business use after all infringing methods were prohibited. See ftn. 3, p. 3. Most of the remaining objections center on the fact that the Master chose to credit the testimony of plaintiff's witnesses and discredit that of defendant's witnesses. Where the resolution of factual disputes turns on questions of credibility and the Master has heard the witnesses and observed their demeanor, his findings are entitled to especially great weight. Those findings will not be disturbed here. *See, In re Riddlesburg Mining Co.*, 122 F.Supp. 560 (W.D. Pa. 1954), modified and affirmed 224 F.2d 834 (3d Cir. 1955).

> by this Court as 'compensation for the pecuniary loss he [the patentee] has suffered from infringement, without regard to the question whether the defendant has gained or lost by his unlawful acts.' . . . They have been said to constitute 'the difference between his pecuniary condition after the infringement, and what his condition would have been if the infringement had not occurred.' . . . The question to be asked in determining damages is, 'How much had the Patent Holder and Licensee suffered by the infringement.' And that question [is] primarily: Had the Infringer not infringed, what would Patent Holder-Licensee have made?" *Aro Mfg. Co.* v. *Convertible Top Co.*, 377 U.S. 476, 507 (1964).

In the present case, the plaintiff was not itself engaged in the metal reclaiming business. Its damages therefore are only the royalties foregone as a result of defendant's infringement. These royalties might have been paid to plaintiff under licenses with defendant, or, perhaps, under licenses with others in the metal reclaiming business whose operations would have expanded if defendant's operations had not grown (as they did) through its use of the Trio or other process.

A reasonable royalty, then, should be one which approximates the royalty the parties would have agreed upon, if both were reasonably trying to reach an agreement. This approach, known as the "willing licensor-willing licensee rule," has been stated as follows:

> "In fixing damages on a royalty basis against an infringer, the sum allowed should be reasonable and that which would be accepted by a prudent licensee who wished to obtain a license but was not so compelled and a prudent patentee, who wished to grant a license but was not so compelled." *Horvath* v. *McCord Radiator and Mfg. Co.*, 100 F.2d 326, 335 (6th

Cir. 1938), *cert. denied, Carrier Engineering Corp.* v. *Horvath*, 308 U.S. 581, *rehearing denied*, 308 U.S. 636 (1939).

The measure must be of plaintiff's actual damages. To the extent possible, therefore, this hypothetical royalty should reflect the realities of a market place confrontation between plaintiff and prospective licensee, including their relative bargaining strengths, the net profits that the prospective licensee thinks he will make, the commercial alternatives available to the licensee, and so on.

The Master concluded that Finnegan's expert opinion as to a reasonable royalty was, in essence, based on an application of the willing licensor-willing licensee theory. This is also plaintiff's position. However, in my view, Finnegan's opinion cannot be so interpreted. Finnegan admitted that in arriving at a reasonable royalty of $35,000 he did not consider plaintiff's actual licensing practices, its strategy for gaining acceptance of the Trio process through liberal pricing, and its lack of knowledge (until the proceedings before the Master) of the very large labor-saving benefits conferred by its patent.[9] For the reasonable royalty to be a truly compensatory measure, these factors cannot be totally ignored.

I have concluded that the reasonable royalty of $26,390 per furnace per year, fixed by the Master, is too high when viewed in light of existing circumstances which

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[9] Normally, another factor relevant to the consideration of what royalty would be agreed upon through hypothetical negotiations—and not considered by Finnegan—is defendant's financial ability to pay the suppositious royalty and still be left with a reasonable profit. *Georgia-Pacific Corp.* v. *U.S. Plywood-Champion Papers, Inc.*, 446 F.2d 295 (2d Cir. 1971), *cert. denied*, 404 U.S. 370 (1971). In this case, however, the master concluded that the only evidence on the level of profits realized by defendant through its use of the Trio process, the Coopers & Lybrand data, was not reliable. Accordingly, he made no finding with respect to this subject.

serve to indicate what royalty plaintiff actually lost.[10] The highest royalty fixed by the four licenses issued by plaintiff before the start of defendant's infringement was $13,000 per furnace life, or, for a furnace of average life, $2,600 per furnace year. However, these licenses were negotiated while the Trio process patent application was still pending. It also appears that the patentee considered this amount to be very low, but believed that the bargain price would help to establish widespread use of the patented process. From the testimony of Albert Spitz, one of the principals of Trio Corporation, it can be inferred that this liberal pricing policy was continued through 1972.

No licenses were granted between February 5, 1963, when the patent issued, and the beginning of defendant's infringement in late 1964 or early 1965. Of the next five licenses granted by Trio, between September 1965 and May 1969, four charged about the same amount, $13,000, and one fixed a higher royalty of $17,000 per furnace life. As a result of a change in plaintiff's pricing policy, in late 1970 or early 1971, the last two licenses granted by plaintiff provided for a royalty of $17,500-$18,000 per furnace life (or about $3,600 per furnace year). The significance of these figures is diminished by the fact of defendant's continuing infringement during this period.

> "It is a fact of economic life that an open infringement tends to reduce a patentee's fees from its sub-

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[10] The Master's determination of a reasonable royalty is not a finding of fact which this Court must accept unless clearly erroneous. Rather, it is an ultimate conclusion deduced from the basic findings of fact by applying the correct legal standard. Whether viewed as a conclusion of law or a determination of a mixed question of law and fact, the "finding" of a reasonable royalty is subject to broad judicial review. *Georgia-Pacific Corp.* v. *U.S. Plywood-Champion Papers, Inc.*, 446 F.2d 295 (2d Cir. 1971), *cert. denied* 404 U.S. 870 (1971). *Cf. Becker* v. *Loew's, Inc.*, 133 F.2d 889 (7th Cir. 1943), *cert. denied*, 319 U.S. 772 (1943).

> sequent licensees who must meet the infringer's competition, and such infringement deters potential licensees from taking a license." *Hartford National Bank & Trust Co.* v. *E. F. Drew & Co.*, 188 F.Supp. 353, 362, *rev'd* 188 F.Supp. 347 (D. Del. 1960), *aff'd per cur.*, 290 F.2d 583 (3d Cir. 1961), *cert. denied*, 368 U.S. 825 (1961).

Apparently, no licenses have been granted since the Court of Appeals held the patent to be valid, on May 22, 1972.[11] There is, therefore, no evidence as to the amount of a royalty actually negotiated after the issuance of the Trio patent and free of the effects of defendant's open infringement.

The determination of a reasonable royalty in a case like this must necessarily be somewhat arbitrary. I have considered the many factors suggested by the *Georgia-Pacific* case to be relevant to this determination. Some of these factors, particularly the consideration of the economic benefits realized through the use of the patent, point to a royalty much higher than the one I have fixed. In my view, however, the clear rule of the *Aro* case is that the measure of damages is what the patentee actually lost, and it is this principle that I have sought to follow.

I have fixed a reasonable royalty at $7,800 per furnace year for the years preceding the first adjudication of the patent's validity, by the Court of Appeals on May 22, 1972. This represents about three times the royalty rate provided for by existing license agreements. In setting that rate, I have considered the depressing effect that defendant's infringement may have had on the royalties

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[11] The master found that although the last two license agreements were dated June 21, 1972, the plaintiff had bound itself to the terms of those agreements before the Court of Appeals rendered its decision.

under the seven licenses granted by plaintiff over the period of infringing use. I have increased the reasonable royalty to $15,000 per furnace year for the 14-month period of infringing use following the adjudication of validity. *See, Hartford National Bank & Trust Co.* v. *E. F. Drew & Co., supra,* at 360; *Mercantile National Bank of Chicago* v. *Quest, Inc.,* 173 U.S.P.Q. 652 (N.D. Ind. 1972).

The appendix to this opinion sets forth the computation of primary damages based on these royalties and the master's findings with respect to the number of infringing furnaces used by defendant in each year of the period of infringement. Interest at 6% has been allowed from the end of each infringing year, when those royalty payments would have been made, to the present. The legislative history of 35 U.S.C. § 284, recited in the *Aro* case, clearly shows that such an allowance of interest was intended, and damage awards commonly so provide. *See, e.g., Hartford National Bank & Trust Co.* v. *E. F. Drew & Co., supra.*

I have further decided that the facts of this case do not warrant trebling the full amount of the primary damages. This Court's previous finding, affirmed on appeal, that defendant's infringement was willful, does not automatically require that damages be trebled. Rather, the multiplication of damages depends on the degree of bad faith exhibited by defendant throughout the case.

There is no doubt in this case that defendant deliberately and aggressively exploited the patented process through its infringement. Unable to duplicate the Trio process by its own ingenuity, defendant obtained two licenses (with furnaces) from plaintiff and then copied the Trio furnace design. Defendant later told plaintiff that it had no room for additional furnaces, when in actuality it had set about to produce several copies for

installation. Defendant's conduct in these proceedings, both before this Court and before the Master, has at times been marked by instances of concealment and deception regarding material facts. Finally, this Court's finding of contempt was based on the fact that defendant continued to practice a wire reclaiming method with actual knowledge that the practiced method violated the injunctive decree of January 31, 1973.

On the other hand, the validity of the patent in this case was a matter over which reasonable legal minds could, and actually did, differ. The defendant sought the advice of different patent counsel on two occasions: once before the patent grant, with respect to the patentability of the Trio process; and again, after the patent was issued and the infringement begun, with respect to the validity of that patent. The advice received was that the Trio process was not entitled to the protection of a valid patent. Indeed, this Court's assessment of the patent validity issue was the same. In situations like this, where there is room for genuine doubt as to a patent's validity, challenges to validity may serve the public interest and should not be too harshly punished. *Lear, Inc.* v. *Adkins*, 395 U.S. 653, 670-71 (1969).

In sum, although defendant's challenge to the Trio patent has been made in a less than honest, open and good faith manner, nevertheless the challenge had a sound basis in reason. I have concluded that the damages for the period before the Court of Appeals' adjudication of validity should be doubled, not trebled. The appendix sets for the results of this multiplication.

Fines for civil contempt, except when imposed for the purpose of coercing the contemnor into compliance, must be limited to an amount equal to the complainant's actual loss due to the contemnor's disobedience. *U.S.* v. *United Mine Workers*, 330 U.S. 258, 303-04 (1947). The pri-

mary damages already awarded to compensate plaintiff for the losses it sustained as a result of defendant's infringement cover the contempt period from January 31 to July 20, 1973. Therefore, the only loss or expense resulting from defendant's contempt not yet compensated is the cost to plaintiff of prosecuting its contempt motion and supporting this Court's order of July 17, 1973, on appeal. Plaintiff will be awarded $5,000 as compensation for reasonable attorney's fees incurred in this connection.

In my view, this case is not an "exceptional case" for which reasonable attorney's fees for the entire action should be awarded to the prevailing party under 35 U.S.C. § 285. However, the full costs of this action, including the Master's fee hereinafter allowed, will be taxed against defendant.

2. *Plaintiff's motion to file amended and supplemental pleadings.*

In its original complaint, plaintiff named L. Goldstein's Sons, Inc. ("Goldstein's") as the sole defendant. Plaintiff now seeks to add as additional defendants John Schorsch, Irvin Schorsch, Metal Bank, Inc. and Union Corporation. Plaintiff also seeks to supplement its complaint with a new count averring a fraudulent conveyance of corporate assets from Goldstein's to John and Irvin Schorsch, praying that it be set aside and that the assets conveyed be impressed with a trust for the plaintiff's benefit.

In support of this motion, plaintiff alleges the following facts, uncontroverted by defendant: Until December 1968, John and Irvin Schorsch were co-owners and chief executive officers of Goldstein's. (Between 1966 and 1968, by virtue of a change of its corporate name, Goldstein's existed as The Metal Bank of America, Inc., a name which it used in its business until December

1968, when it reassumed its original name, L. Goldstein's Sons, Inc. However, in the discussion that follows, the Schorschs' corporation will consistently be referred to as "Goldstein's," irrespective of its changing legal name.)

In December 1968, Goldstein's sold most of its corporate assets to Union Corporation ("Union"). Under the sale agreement, Goldstein's sold to Union its machinery and inventory, along with the right to use the name Metal Bank of America, Inc., and received in consideration therefor $3.8 million plus 60,184 shares of Union's common stock (valued at more than $1 million) and a promise to pay further consideration at a later date, the amount being contingent upon the performance of the acquired business. Goldstein's retained ownership of its real estate, but leased it to Union under a 10-year lease, with rent over that period totalling $500,000. At the same time, Union caused to be established a wholly-owned subsidiary with the corporate name The Metal Bank of America, Inc. ("Metal Bank"), which thereafter carried on the business theretofore conducted by Goldstein's, occupying the premises leased from Goldstein's and using Goldstein's former machinery and inventory. Both John and Irvin Schorsch were employed as executive officers of Metal Bank.

The infringing use of the Trio process followed the transfer of business from Goldstein's to Metal Bank. Union knew of the pendency of the present action against Goldstein's, and agreed that Metal Bank would take over its defense and be responsible for any liability found against Goldstein's.

Pursuant to a plan of liquidation adopted in December 1968, and by a series of payment and conveyances between January and August 1969, Goldstein's was liquidated. Under the liquidation plan, John and Irvin Schorsch received Goldstein's real estate (subject to the

10-year lease), the money and stock received from Union in December 1968, and the residual assets of Goldstein's. In March 1969, Goldstein's filed a Certificate of Election to Dissolve with the Secretary of State of Pennsylvania. However, it failed to notify plaintiff, a claimant of Goldstein's, of the winding-up proceedings, as required by Pennsylvania law. Furthermore, in its Articles of Dissolution, filed with the State in October 1969, Goldstein's represented that "there are no suits pending against the corporation in any court." In June 1970, a Certificate of Dissolution was issued to Goldstein's by the Secretary of State of Pennsylvania.

Plaintiff did not learn of the liquidation and dissolution of Goldstein's until the proceedings before the Master in late 1973 or early 1974. Plaintiff did know, however, of the December 1968 transactions soon after their happening.

In December 1971, and April 1972, Union gave to the Schorschs additional stock and notes, as the further consideration promised in the sale agreement of December 1968. The value of this payment was between $1.3 and $2.2 million.

Finally, some time in 1973, Union acquired M. J. Stavola, Inc., another metal reclaiming company, the name of which was changed to Union Metallics Corp. Its board of directors and management were controlled by John Schorsch and two other officers of Union. Plaintiff alleges that, with respect to inter-subsidiary transactions, Union's pricing policies have favored Union Metallics and disfavored Metal Bank. The same sort of discriminatory decisions are said to have been made by Union with respect to the addition of new facilities for its subsidiaries. Plaintiff asserts that the net effect of these alleged actions has been to drain away the assets of Metal Bank and enrich Union or its other subsidiaries.

Plaintiff will be allowed to join as a party defendant Metal Bank, the transferee of almost all of Goldstein's interest. Under Rule 25(c) of the Federal Rules of Civil Procedure, a transferee of interest may be either substituted for or joined with an original party whose interest has been transferred during the pendency of the action. Since in this case the transfer of interest was not complete, Goldstein's having retained ownership of its real estate, joinder appears preferable to substitution.[12] The addition of Metal Bank as a named defendant is, of course, entirely a matter of convenience, for the plaintiff's rights against the transferee of interest are protected whether or not the pleadings are amended. *O'Donohue* v. *First National Bank of Philadelphia*, 166 F.Supp. 233 (E.D. Pa. 1958). Indeed, counsel for Metal Bank have always conceded that their client will be bound by a judgment in this action.

However, at this late stage of these proceedings, plaintiff cannot be permitted to amend its complaint to add either Union or John and Irvin Schorsch as defendants. By its motion to amend, plaintiff seeks to make these parties personally liable for the infringement of the Trio patent, a matter adjudicated with respect to Goldstein's several years ago. It is true, of course, that in some circumstances large stockholders and corporate officers are personally liable for patent infringement by their company, *Dean Rubber Mfg. Co.* v. *Killian*, 106 F.2d 316 (8th Cir. 1939), just as there are circumstances which make a parent corporation liable for infringement by its

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[12] While at common law dissolution of a corporation abated any pending actions against it, Pennsylvania's Business Corporation Law now provides that such actions survive dissolution. 15 P.S. § 2111. Goldstein's is, or was, incorporated under Pennsylvania law, and that law appears to govern the effect of Goldstein's dissolution. Besides, it is doubtful that Goldstein's dissolution should have the effect of abating actions pending against it when serious irregularities appear to have accompanied the winding-up proceedings.

subsidiary, *Detroit Motor Appliance Co.* v. *General Motors Corp.*, 5 F.Supp. 27 (E.D. Ill. 1933). But it is essential that such additional parties be named early enough in the action to afford them an opportunity to litigate not only the issues of supervisions, participation, and so on, upon which turns their personal liability for the wrongful conduct of a corporation which they own and control, but the basic issues of patentability and infringement as well.

Plaintiff admits that it has known for several years the close relationship between Goldstein's and the Schorschs and between Metal Bank and Union; in fact, it appears that plaintiff first knew these matters some time before the trial on patentability and infringement in June 1969. Had the Schorschs and Union been named as defendants then, they would have had a full and fair opportunity to litigate all the issues on which their personal liability hinges. Now, 10 years after the filing of the complaint and 6 years after the trial, it is too late.

Plaintiff also seeks leave to supplement its complaint with a claim to have set aside the allegedly fraudulent conveyance from Goldstein's to the Schorschs, as permitted by Rule 18(b) of the Federal Rules of Civil Procedure, and to add John and Irvin Schorsch as defendants with respect to this claim. The justification for allowing this amendment is considerably stronger since it appears that plaintiff did not learn of the liquidation and dissolution of Goldstein's until late 1973 or early 1974. More importantly, it would not be unfair to the Schorschs to join them as defendants with respect to this new claim because they would be able to litigate all of the issues central to that claim. *See, e.g., Empire Lighting Fixture Co.* v. *Practical Lighting Fixture Co.*, 20 F.2d 295 (2d Cir. 1927).

However, I believe that the sound exercise of discretion calls for denying plaintiff's request to inject new

issues into this case, now open for almost 10 years, in favor of hastening its conclusion. In the first place, I am not persuaded that the relief sought by plaintiff is needed to protect its claim. While there may have been cause for concern on plaintiff's part that Metal Bank would not be able to satisfy a judgment of over $5 million, the damages recommended by the Master, there is no reason to believe that Metal Bank could not answer to the reduced damages awarded herein. (The purchase price paid by Union for Metal Bank's business exceeded $6 million.)

Second, following judgment, plaintiff can resort to supplementary proceedings against the Schorschs and Union to seek the relief it desires now, if that becomes necessary. I do not believe that plaintiff will be prejudiced by requiring it to bring a new action on its judgment, an action that may never be needed, rather than allowing it to raise new issues as a part of this very old case.

3. *Fee of the Master.*

The Master's motion for allowance of compensation in the amount of $32,500 is adequately supported by proof of the time spent (a total of 325 hours), the nature of the work performed, and the hourly rates customarily charged. Neither party has questioned the Master's assertions, nor the propriety of the award requested ($32,500). The absence of objection does not, however, relieve this Court of its obligation to determine the reasonableness of the compensation sought.

I believe all concerned are now aware that the proceedings before the Master were unduly protracted, primarily because of the obduracy and uncooperativeness of the defendant. The result is that the proceedings before the Master were more costly than they should have been, but this is clearly not chargeable to the Master, who did everything he could to expedite matters.

I would therefore be inclined to approve payment of the full amount sought by the Master, were it not for my feeling that this would represent somewhat excessive compensation for the preparation of the Master's report. For that part of his services, the Master seeks compensation for 135 hours at $100 per hour, or a total of $13,500. While I have no doubt that the Master labored long and diligently in drafting his report, I do not believe he can be held reasonably entitled to compensation at the rate of $100 per hour for 135 hours. Whether as a function of disallowing some of the time spent, or of reducing the hourly rate, I do not believe compensation in excess of $10,000 can properly be allocated to the preparation of the report.

Accordingly, the Master will be allowed a total fee of $29,000.

APPENDIX: CALCULATION OF DAMAGES

Year	Number of Infringing Furnaces	$7,800 X Number of Infringing Furnaces	Years at 6% Interest	Interest Due	Primary Damages Multiplied[1]	Multiplied Damages Plus Interest
1965	3	23,400	9¼	17,279	46,800	64,079
1966	7	54,600	8¼	34,944	109,200	144,144
1967	7	54,600	7¼	29,877	109,200	139,077
1968	9½	74,100	6¼	34,064	148,200	182,264
1969	11	85,800	5¼	32,355	171,600	203,955
1970	10	78,000	4¼	23,338	156,000	179,338
1971	10	78,000	3¼	16,271	156,000	172,271
1/1/72 to 5/22/72	3.889	30,334	2[2]	25,380	60,668	
5/22/72 to 7/20/73	11.667	175,005[3]			525,015	611,063
TOTALS	73.056	653,839		213,508	1,513,017	1,726,525

[1] Primary damages are doubled for all periods before May 22, 1972, and trebled for the final period of May 22, 1972-July 20, 1973.

[2] For purposes of calculating interest, the amount for the period January 1, 1972-July 20, 1973, totaling $205,339, is considered to have been due on April 1, 1973.

[3] $15,000 times the number of infringing furnaces.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

Civil Action No. 38,166

TRIO PROCESS CORPORATION,
Plaintiff

v.

L. GOLDSTEIN'S SONS, INC.,
Defendant

ORDER

AND NOW, this 18th day of April, 1975, for the reasons set forth in the foregoing Opinion, it is ORDERED that:

1. Metal Bank, Inc., is added as a party defendant.

2. In all other respects, plaintiff's motion to file amended and supplemental pleadings is DENIED, without prejudice.

3. Judgment is entered in favor of the plaintiff and against the defendants in the sum of $1,726,525, together with interest thereon from and after April 1, 1975, together with costs.

4. The compensation of the Master is fixed at $29,000, which sum the defendants are hereby ordered to pay.

5. The defendants are hereby ordered to pay to plaintiff the sum of $5,000 in order to purge the contempt of Court heretofore adjudicated.

/s/ John P. Fullam, J.
[JOHN P. FULLAM, J] J

APPENDIX F [*Trio Process* III]

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

Nos. 75-1556 and 75-1557

TRIO PROCESS CORPORATION and FRANKLIN SMELTING & REFINING CO., a partnership

v.

L. GOLDSTEIN'S SONS, INC. and METAL BANK, INC.
Trio Process Corporation, appellant in 75-1556

TRIO PROCESS CORPORATION and FRANKLIN SMELTING & REFINING CO., a partnership

v.

L. GOLDSTEIN'S SONS, INC. and METAL BANK, INC.,
Appellants in 75-1557

On Appeal From the United States District Court for the Eastern District of Pennsylvania—No. 38,166

Argued November 17, 1975

Petition for Rehearing Before the Panel Granted
February 12, 1976

Reargued March 24, 1976

Before: VAN DUSEN, ADAMS and ROSENN, *Circuit Judges.*

THOMAS M. FERRILL, JR.
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Appellants

OPINION OF THE COURT

(Filed April 23, 1976)

ADAMS, *Circuit Judge.*

In May 1972, this Court determined that United States Patent No. 3,076,421, owned by Trio Process Corporation (Trio), is a valid patent, that it had been willfully infringed by L. Goldstein's Sons, Incorporated (Goldstein),[1] and that the case should be remanded to the district court for a determination of damages.[2] The question posed by the present appeal is whether the district court on the remand erred in assessing the damages.

I.

The patented process which undergirds this controversy is a technique for salvaging copper from scrap wire by the use of a special furnace in which the heat removes the insulation from the wire.[3]

Although a patent was not issued until 1963, the owner, Trio, had instituted a program of licensing almost immediately after completion of the development of the removal method in the late 1950's. In fact, licensure was the only use Trio made of the patent; it never utilized the process itself.

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[1] The original defendant, L. Goldstein's Sons, Inc., was succeeded in interest by Metal Bank of America, Inc. Both these parties will be referred to in this opinion as Goldstein.

[2] Trio Process Corp. v. L. Goldstein's Sons, Inc., 461 F.2d 66 (3d Cir.), *cert. denied*, 409 U.S. 997 (1972).

[3] A detailed description of the process can be found in the opinion concerning the validity and infringement of the patent. Trio Process Corp. v. L. Goldstein's Sons, Inc., 461 F.2d 66 (3d Cir.), *cert. denied*, 409 U.S. 997 (1972).

The licenses sold by Trio were for five-year periods. Minkin Metal Company bought the first license. The purchase price of $20,000 covered both the license itself and the furnace needed to use the process; $13,000, or $2,600 per furnace year, was allocated for the license, and $7,000 for the furnace. Goldstein was the next purchaser, buying two sets of licenses and furnaces in 1960, one set for $20,000 and the other for $15,000. Agreements were subsequently entered into by Trio with four other buyers between 1962 and 1969 at the $20,000 rate.[4] One company bought the package in 1967, with a modified but more expensive furnace, for $25,000. Another purchased the package later in the same year for $19,500. After a decision by Trio to raise the price, two more packages were sold in 1972 for $25,000. No licenses have been granted since this Court's decision holding that the patent is valid.[5]

Despite our determination in 1972 that the patented method had been willfully infringed by Goldstein, the infringement continued through 1973. In January of that year, Trio sought, and was granted, an injunction against Goldstein's continuing use of the technique. Following the ensuing violation of the strictures of the injunction, the district court entered an order holding Goldstein in contempt. This Court affirmed that order in March 1974.[6]

While the contempt motion was being adjudicated, proceedings were taking place before a master in order to determine damages due Trio for Goldstein's infringement

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[4] The price thus did not change upon issuance of the patent in 1963.

[5] Although the last two transactions were finalized after this Court's May 1972 decision, the parties to the contracts had committed themselves to the price of $25,000 prior to that decision.

[6] Trio Process Corp. v. L. Goldstein's Sons, Inc., No. 73-1821 (3d Cir., Mar. 12, 1974).

of the patent.[7] The district court appointed the master in January 1973 and his report was filed, after the taking of extensive testimony, in June 1974. The master approached the damage issue by comparing Goldstein's costs of operating the patented process with the costs of a similar, unpatented process. He found that use of the Trio process saved Goldstein $52,791 per furnace year in labor costs alone, and that other, smaller, savings accrued to Goldstein from use of the patented method as well.

In order to reach a "reasonable royalty" for use of the patent by the infringer,[8] the master halved Goldstein's savings in labor costs, and concluded that $26,390 was a reasonable royalty for each furnace year. Multiplying this figure by the number of furnace years of infringement and making slight modifications, the master found damages of $1,564,804. The master recommended trebling this amount, as allowed by 35 U.S.C. § 284 (1970).[9] After trebling and the addition of interest, the total damage figure proposed by the master was $5,062,954.

The district court viewed the damage computation not with regard to the money saved by the defendant as a result of its infringement, as the master had, but in

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[7] Goldstein's violation of the district court's January 1973 injunction was also referred to the master for an evaluation of the damages it had caused Trio.

[8] The concept of a reasonable royalty represents the minimum measure of damages provided by 35 U.S.C. § 284 (1970).

[9] The statute provides:

> Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court.
>
> When the damages are not found by a jury, the court shall assess them. In either event the court may increase the damages up to three times the amount found or assessed.

terms of what Trio had lost. It looked first to the initial sum of $2,600 per furnace year—the amount actually charged by Trio for licenses in the 1960-1970 era. The district court then increased the $2,600 figure on the assumption that the open infringement had reduced the market price of the license, and proceeded to set damages at $7,800 per furnace year for the years prior to the decision by this Court on validity, a figure three times the rate charged by Trio during the 1960's. Damages were set at $15,000 per furnace year for the period following the 1972 adjudication. The employment of these figures resulted in total primary damages of $653,839. The trial judge then proceeded to use a double multiplier —in contrast to the master's trebling figure—and denied attorneys' fees. With interest, the total damages computed by the district court were $1,726,525.[10]

Both parties appealed the award of damages. Trio contends that the master's determination was correct and should not have been disturbed by the district court. It argues that the reduction was contrary to economic fact and that the trial judge should have based its calculations upon the reasonable royalty set by the master. Trio further asserts that the damage multiplier should not have been reduced from three to two by the district judge since Goldstein allegedly exhibited a substantial degree of bad faith in its infringement of the patent and there are, Trio declares, no mitigating circumstances sufficient to justify the reduction of the multiplier.

Goldstein maintains that the license fee generally charged by Trio during the 1960's—$2,600 per year for a five-year period, or $13,000—is the proper basis for measuring damages, and that there is no reason to depart from this rate, which was established by Trio itself. Goldstein further claims that there was no evidentiary

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[10] Additionally, the district court awarded $5,000 to Trio for Goldstein's contempt of the injunctive order.

basis whatever for the district court's decision to increase the established rate to $7,800 and $15,000 per furnace year, respectively, in order to assess damages. The final challenge by Goldstein to the damage award concerns the multiplier. Since it allegedly followed the advice of counsel in using the Trio method, Goldstein argues that it was improper for the court to multiply the primary damages at all.[11]

II.

In assessing damages, the district court chose as the rate of a reasonable royalty for the periods preceding and following this Court's May 1972 decision on validity, figures approximately three and six times as large as the $2,600 price usually charged by Trio per furnace year for licenses during the 1960's.[12]

We find no error in the first step of the district court's damage calculation, namely, focusing upon the losses suffered by the patent holder rather than upon the profits illegally made by the patent infringer. The approach utilized by the district court has been mandated since the decision in *Aro Manufacturing Co.* v. *Convertible Top Replacement Co.*, 377 U.S. 476 (1964). The Supreme Court there ruled that "to determine the damages that may be recovered from [the infringer] here, we must ask how much [the patent holder] suffered by [the] infringement—how much [the patent holder] would have made if [the infringer] had not infringed." *Id.* at 507. Because Trio is not itself engaged in the metal reclaiming business, the trial court correctly held that the only dam-

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[11] In its notice of appeal, Trio preserved its right to appeal both the district court's order that Goldstein pay Trio a contempt penalty of only $5,000 and the district court's refusal to award Trio attorneys' fees. Trio has not pursued these points in its appeal, however, and accordingly we do not address them.

[12] This approach was taken in order to comply with the provisions of 35 U.S.C. § 284. *See* note 9 *supra*.

age Trio had suffered was the loss of the royalties it would have received if Goldstein's use of the process had been made under an appropriate licensure agreement.

The district court did not act improperly in ascertaining that the license rate established by Trio in the 1960's may have been artificially depressed by Goldstein's ongoing infringement, and that the reasonable royalty should therefore be set at a level above the actual license rate. As one court has accurately observed, "[i]t is a fact of economic life that an open infringement tends to reduce a patentee's fees from its subsequent licensees who must meet the infringer's competition, and such infringement deters potential licensees from taking a license." [13]

However, the trial judge erred in ruling that the amount of a *reasonable royalty* for the Trio process increased after the decision by this Court ascertaining the patent's validity. If a patent is adjudged valid, the single reasonable royalty to be paid for its infringement is determined with reference to the judicial approval of the patent. "The reasonable royalty must . . . be determined . . . upon the hypothesis that the patent was valid and would be respected." [14] The reasonable royalty thus established is applied to the full period of infringement, because "determination of an assumed reasonable royalty is in essence a device for retroactively reaching a just result. . . ." [15]

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[13] Hartford Nat'l Bank & Trust Co. v. E. F. Drew & Co., 188 F. Supp. 353, 362 n.50 (D. Del.), *modified*, 188 F. Supp. 347 (D. Del. 1960), *aff'd per curiam*, 290 F.2d 589 (3d Cir.), *cert. denied*, 368 U.S. 825 (1961).

[14] General Motors Corp. v. Blackmore, 53 F.2d 725, 729 (6th Cir. 1931).

[15] Georgia-Pacific Corp. v. U.S. Plywood-Champion Papers, Inc., 446 F.2d 295, 300 (2nd Cir.), *cert. denied*, 404 U.S. 870 (1971). *Accord*, Hartford Nat'l Bank & Trust Co. v. E. F. Drew & Co., *supra* at 362-63.

In addition, we cannot discern any basis for the district court's choice of a particular royalty. The district court merely, as he put it, "considered the depressing effect that defendant's infringement may have had on the royalties" and "considered the many factors suggested by the *Georgia-Pacific* case," [16] and then fixed the royalty. There was no description of the manner in which the royalty rate was affected by the evidence proffered by the parties: the existing licensure rate and the testimony of expert witnesses expressing views of the appropriate level of a reasonable royalty. In the absence of such an articulation, we cannot know the specific method of the district court's determination of the reasonable royalty. For this reason, we must remand.

On remand, the district court should give proper regard to the rule that the extent of the deviation of existing license fees from a reasonable royalty must be determined solely on the basis of the submitted evidence and upon an evaluation of the factors that could affect the reasonable royalty rate,[17] not upon mere conjecture. That rule is derived from a line of several Supreme Court decisions that instruct the federal courts to allow damages in a patent action only to the extent indicated by appropriate evidence.

As long ago as 1860, the Supreme Court ruled in *Mayor of New York* v. *Ransom* [18] that "[w]here a plaintiff is allowed to recover only 'actual damages,' he is bound to furnish evidence by which the [trier of fact]

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[16] He was referring to Georgia-Pacific Corp. v. United States Plywood Corp., 318 F. Supp. 1116, 1120 (S.D. N.Y. 1970), *modified*, 446 F.2d 295 (2d Cir.), *cert. denied*, 404 U.S. 870 (1971).

[17] An exhaustive list of the factors to be considered can be found in Georgia-Pacific Corp. v. United States Plywood Corp., 318 F. Supp. 1116, 1120 (S.D. N.Y. 1970), *modified*, 446 F.2d 295 (2d Cir.), *cert. denied*, 404 U.S. 870 (1971).

[18] 64 U.S. (23 How.) 487 (1860).

may assess them. . . . Actual damages must be calculated, not imagined, and an arithmetical calculation cannot be made without certain data on which to make it." [19] This doctrine has been developed over the years in several cases. *Rude* v. *Westcott* [20] and *Boesch* v. *Graff* [21] followed the original *Ransom* holding precisely. In an early twentieth century decision on the question, the Court reiterated the rule that " 'in order to get at a fair measure of damages, or even an approximation of it, general evidence must necessarily be resorted to.' " [22] And the holding in *Sinclair Refining Co.* v. *Jenkins Petroleum Process Co.*, 289 U.S. 689 (1933), that a bill of discovery may be made available to enable the plaintiff in a patent case to prove his damages, was necessarily erected upon the foundation that such proof is a prerequisite to recovery.[23]

It was thus improper for the district court to fix the reasonable royalty without an explanation of how the particular level chosen was related to the evidence prof-

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[19] *Id.* at 488.

[20] 130 U.S. 152, 167 (1889).

[21] 133 U.S. 697, 706 (1890).

[22] Dowagiac Mfg. Co. v. Minnesota Moline Plow Co., 235 U.S. 641, 649 (1915), *quoting* Suffolk Co. v. Hayden, 70 U.S. (3 Wall.) 315, 320 (1866).

[23] The rule was recognized again more recently in United States v. National Lead Co., 332 U.S. 319, 352 n.8 (1947). *See also* Molinari v. Lafayette Radio Electronics, 62 F.R.D. 464, 466 (E.D. Pa. 1973).

The statutory language in force when these earlier Supreme Court decisions were made differs from the language of the current statute, but only in immaterial ways. *See* Act of August 1, 1946, ch. 726, § 1, 60 Stat. 778; Act of Feb. 18, 1922, ch. 58, § 8, 42 Stat. 392; Act of Mar. 3, 1897, ch. 391, § 6, 29 Stat. 694; Act of July 8, 1870, ch. 230, § 59, 16 Stat. 207; Act of July 4, 1836, ch. 357, § 14, 5 Stat. 123; Act of April 17, 1800, ch. 25, § 3, 2 Stat. 38. The relevant decisions of the Supreme Court would thus appear to have full effect today.

fered by the parties. The cause thus must be remanded for reconsideration.[24]

III.

Following the guidance given by 35 U.S.C. § 284 that "the court may increase damages up to three times the amount found or assessed," the district court doubled the damages it had calculated. The factor by which damages are multiplied is within the sound discretion of the district court.[25] There has been no demonstration, in view of the facts of this case, that the doubling of the damages constituted an abuse of that discretion.[26]

IV.

That portion of the district court's judgment dealing with damages will be vacated, and the cause will be remanded for further proceedings consistent with this opinion.

A True Copy:

Teste:

Clerk of the United States Court of Appeals for the Third Circuit.

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[24] We do not decide whether the presentation of additional evidence will be necessary to the decision of the district court; rather, we leave that decision to the district court. However, counsel for both parties stated at reargument, in writing and orally, that, in their view, additional evidence was not necessary for the assessment of damages.

[25] Hartford-Empire Co. v. Shawkee Mfg. Co., 163 F.2d 474, 480 (3d Cir. 1947).

[26] The questions whether and to what extent to multiply the reassessed damages may also be reconsidered by the district court.

APPENDIX G

Trio Process Corp. v. *L. Goldstein's Sons, Inc.*, Civil No. 38,166 (E.D. Pa. Sept. 22, 1978) (memorandum opinion):

FULLAM, *District Judge.*

The history of this patent case is long and complicated. It has been fully discussed in Opinions issued by the United States Court of Appeals for the Third Circuit,[1] and, therefore, it will be mentioned here only when it is relevant to the issue with which this Opinion is concerned, the determination of damages.

Once before, on April 18, 1975, this Court issued an Order awarding plaintiff damages for infringement of United States Patent No. 3,076,421. The sum awarded was based, in part, on the conclusion that the reasonable royalty to which plaintiff was entitled increased after the Third Circuit held in 1972 that plaintiff's patent was valid. That conclusion was in error. When the Order of April 18, 1975, was appealed, the Third Circuit held that a patent holder is entitled to a single reasonable royalty for infringement whether that infringement occurs before or after judicial approval of the patent. 533 F.2d at 129-30. The Third Circuit, therefore, remanded this case for a redetermination of damages with instructions that this Court should (a) determine the single reasonable royalty applicable throughout the infringement period; and (b) explain how the figure chosen is related to the submitted evidence analyzed in terms of the factors that can affect the reasonable royalty rate.

A reasonable royalty is the license rate that plaintiff and defendant would have agreed upon at the time in-

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[1] *See Trio Process Corp.* v. *L. Goldstein's Sons, Inc.*, 533 F.2d 126 (3d Cir. 1976); *Trio Process Corp.* v. *L. Goldstein's Sons, Inc.*, 493 F.2d 1401 (3d Cir. 1974); *Trio Process Corp.* v. *L. Goldstein's Sons, Inc.*, 461 F.2d 66 (3d Cir.), *cert. denied*, 409 U.S. 997 (1972).

fringement began had they been reasonably and voluntarily negotiating the license agreement. *Tights, Inc.* v. *Kayser-Roth Corp.*, 442 F.Supp. 159, 162 (M.D.N.C. 1977); *Georgia-Pacific Corp.* v. *United States Plywood Corp.*, 318 F.Supp. 1116, 1120 (S.D.N.Y. 1970), *modified*, 446 F.2d 295 (2d Cir.), *cert. denied*, 404 U.S. 870 (1971). In a frequently cited Opinion, the United States District Court for the Southern District of New York lists several factors to be considered in establishing a reasonable royalty. Of those factors, the following have significance in the instant case:

> [1] [T]he existing value of the [patented process] to the licensor as a generator of sales of his non-patented items; and the extent of such derivative or convoyed sales.
>
> [2] The duration of the patent and the term of the license.
>
> [3] The established profitability of the product made under the patent; its commercial success; and its current popularity.
>
> [4] The utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results.
>
> [5] The nature of the patented [process] . . . and the benefits to those who have used the [process].
>
> [6] The extent to which the infringer has made use of the [patented process]; and any evidence probative of the value of that use.
>
> [7] The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer.
>
> [8] The opinion testimony of qualified experts.

Georgia-Pacific Corp. v. *United States Plywood Corp.*, *supra*, at 1120.[2] I have analyzed the evidence in light of these factors and have concluded, for the reasons outlined below, that plaintiff is entitled to a reasonable royalty of $15,000 for each furnace year that defendant wrongfully used plaintiff's patented process for the removal of insulation from scrap wire. The damages evidence in this case was presented to a Special Master.[3] Although I have not adopted the Master's conclusions of law, I have determined that his findings of fact are not clearly erroneous and, therefore, I have accepted them as I did in my earlier Opinion of April 18, 1975.

The first two of the above factors can be disposed of quickly since they have had only a minimal effect on my decision concerning the appropriate reasonable royalty. Plaintiff's ownership of the patent involved in this case did generate furnace sales for plaintiff since plaintiff's practice was to sell to a furnace purchaser a license to use the process for the life of the furnace, approximately five years. Since the patent could generate furnace sales, it can be assumed that plaintiff might have been willing to negotiate a somewhat lower price for a license than the maximum obtainable. However, the second factor,

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[2] I have not included the first factor mentioned in the *Georgia-Pacific* Opinion, the license fees received by the patentee, since they did not show that there was an established royalty and since the fees received were artificially depressed by defendant's ongoing infringement. 533 F.2d at 129. I have, however, been mindful of the Third Circuit's admonition that deviation of the reasonable royalty from existing license fees must be based on the evidence. *Id.* at 130. I think that the evidence discussed in this Opinion demonstrates that a royalty negotiated in the absence of defendant's infringement would have been several times higher than the license fees actually received by plaintiff.

[3] Although there was a hearing on the issues, no new evidence concerning damages was submitted after the Third Circuit's remand of this case.

the term of the patent, had the opposite effect. Plaintiff's patent ran from February 5, 1963, to February 5, 1980. Defendant's infringement of that patent began by early 1965 and continued for over eight years. Since a reasonable royalty is the license fee that would have been freely negotiated at the time infringement began, it can be assumed that defendant would have been willing to pay more for a license purchased, as this one hypothetically was, near the beginning of the patent period than for a license sought at a later time.

The remaining factors, including the opinion testimony of the experts in this case, all touch upon the benefits obtained by defendant through its infringing use of plaintiff's patented process. At first glance, this may seem strange since damages in a patent infringement case are measured by the patent holder's loss, not the infringer's gain.[4] However, the Court finds that the license fee the parties would have agreed upon absent defendant's infringement would to a large extent have been determined by the economic benefits that were obtained through the use of plaintiff's patented process. *See Tights, Inc.* v. *Kayser-Roth Corp., supra,* at 163.

Defendant obtained the following benefits from using plaintiff's process to remove insulation from scrap wire; (a) a reduction in labor costs; (b) an increased recovery of copper from scrap wire; (c) lower fuel consumption per ton of processed material; and (d) the ability to attract more electrical scrap for processing by advertising the advantages of plaintiff's process. It should be noted that defendant was clearly aware of these benefits when it commenced infringement of plaintiff's patent since it had previously used plaintiff's process under two properly purchased licenses. Thus, if defendant had negotiated for additional licenses instead of infringing

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[4] 533 F.2d at 129.

plaintiff's patent, defendant would have been willing to pay substantially more than it had paid for the initial licenses since the process had proven its worth and the defendant would have assumed little or no risk in purchasing the additional licenses.

Unfortunately, the available evidence does not permit the Court to assign a dollar value to each of the benefits defendant obtained. In fact, largely because of the condition of defendant's records, the only dollar figure available is the value of the direct and indirect labor savings achieved by defendant. An expert, whose opinion was credited by the master who heard the damages evidence, testified that defendant had labor savings of $52,791 per furnace per year in 1973 dollars.[5] Since the defendant operated a varying number of infringing furnaces over an 8½-year period, I have reduced this figure to $41,652 to reflect the wages prevailing in 1969, the mid-point in defendant's period of infringement.[6] In voluntary royalty negotiations untainted by defendant's infringing practices, defendant might well have been willing to split this saving with plaintiff and paid plaintiff a royalty of approximately $20,000 for each furnace year, but two factors lead me to conclude that the reasonable royalty should be further reduced to $15,000 per furnace year. First, as noted earlier, plaintiff was a seller of furnaces and thus would have been willing to accept somewhat less than the maximum royalty negotiable in order to promote its sales. And second, plaintiff was unaware before this lawsuit of the exact extent of the labor savings that were obtainable through the use of its process.

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[5] Since defendant made no improvements in plaintiff's process, these savings are completely attributable to the use of that process.

[6] This reduction was accomplished by applying the Master's factual finding as to the extent that the prevailing 1969 wage rates differed from the wage rates prevailing in 1973.

The following table details the damages to which plaintiff is entitled. The number of infringing furnaces is based on the findings of the Master. As I did in my earlier Opinion of April 18, 1975, I have awarded plaintiff interest of 6 percent from the end of each infringing year to the present, I have also doubled the primary damages for the reasons given in that Opinion which were found by the Third Circuit not to be erroneous. 533 F.2d at 131.

CALCULATIONS OF DAMAGES

Year	Number of Infringing Furnaces	$15,000 x Number of Infringing Furnaces	Years at 6% Interest	Interest Due	Primary Damages Multiplied	Multiplied Damages Plus Interest
1965	3	$ 45,000	11¾	$ 44,268	$ 90,000	$ 134,268
1966	7	105,000	10¾	91,502	210,000	301,502
1967	7	105,000	9¾	80,379	210,000	290,379
1968	9½	142,500	8¾	94,844	285,000	379,844
1969	11	165,000	7¾	94,263	330,000	424,263
1970	10	150,000	6¾	72,352	300,000	372,352
1971	10	150,000	5¾	59,766	300,000	359,766
1/1/72 to 5/22/72	3.889	58,335	4½	70,084*	466,680	536,764
5/22/72 to 7/20/73	11.667	175,005				
Totals	73.056	$1,095,840		$608,458	$2,191,680	$2,799,138

* For purposes of calculating interest, the amount for the period January 1, 1972-July 20, 1973, totaling $233,340, is considered to have been due on April 1, 1973.

A True Copy:

Teste:

Clerk of the United States Court of Appeals for the Third Circuit

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF
PENNSYLVANIA

TRIO PROCESS CORPORATION

v.

L. GOLDSTEIN'S SONS, INC.

and

METAL BANK, INC.

Civil Action
No. 38,166

ORDER

AND NOW, this 12th day of October, 1978, upon consideration of plaintiff's Motion pursuant to F.R.Civ.P. 60(a), it is hereby ORDERED that:

1. The judgment entered by this Court's Order dated September 22, 1978, is amended, and judgment is hereby entered in favor of the plaintiff and against the defendants in the sum of $2,901,366, together with interest thereon from and after October 1, 1978, together with costs.

2. The judgment entered in Paragraph 1 of this Order is distinct from and in addition to the sum of $5,000 which defendants were ordered to pay to plaintiff by this Court's Order dated April 18, 1975.

/s/ John P. Fullam
[JOHN P. FULLAM, J] J

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF
PENNSYLVANIA

TRIO PROCESS CORPORATION

v.

L. GOLDSTEIN'S SONS, INC.

and

METAL BANK, INC.

Civil Action
No. 38,166

ORDER

AND NOW, this 22nd day of September, 1978, for the reasons set forth in the foregoing Opinion, it is ORDERED that judgment is entered in favor of the plaintiff and against the defendants in the sum of $2,799,138, together with interest thereon from and after October 1, 1978, together with costs.

/s/ John P. Fullam
[JOHN P. FULLAM, J] J

APPENDIX H [*Trio Process* IV]

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

No. 78-2566

TRIO PROCESS CORPORATION and
FRANKLIN SMELTING & REFINING CO.,
a partnership

v.

L. GOLDSTEIN'S SONS, INC.
and METAL BANK, INC.,
Appellants

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

D. C. Civil No. 38,166

Argued September 6, 1979

Before: ALDISERT, ROSENN, and GARTH,
Circuit Judges

(Opinion Filed January 2, 1980)

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OPINION OF THE COURT

ROSENN, *Circuit Judge*

After a history of fourteen years of litigation in the district court and several appeals to this court, we are confronted again with an appeal in this patent infringement proceeding. The infringement has been established and is no longer at issue.[1] We are, however, revisited with the troublesome issue of damages. When this case was last before us on appeal from the original determination of damages, we vacated the judgment and remanded to the district court with instructions to recalculate the damages.[2] We are now asked to decide whether the district court's action is consistent with our holding in that earlier appeal. We hold that it is not and, therefore, again vacate the district court's judgment.

I.

At the heart of this controversy is a patented process for removing insulation from copper wire in order to allow the copper to be salvaged.[3] This process is covered by United States Patent No. 3,076,421, owned by Trio Process Corporation ("Trio"). In 1972 we upheld the validity of the patent and determined that it had been willfully infringed by L. Goldstein's Sons, Incorporated ("Goldstein"). *Trio Process Corp* v. *L. Goldstein's Sons, Inc.*, 461 F.2d 66 (3d Cir.), *cert. denied*, 409 U.S. 997

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[1] Trio Process Corp. v. L. Goldstein's Sons, Inc., 461 F.2d 66 (3d Cir.), *cert. denied*, 409 U.S. 997 (1972).

[2] Trio Process Corp. v. L. Goldstein's Sons, Inc., 533 F.2d 126 (3d Cir. 1976).

[3] For a more detailed discussion of the patented process and the factual background of this case, *see* Trio Process Corp. v. L. Goldstein's Sons, Inc., 461 F.2d 66, 68-70 (3d Cir.), *cert. denied*, 409 U.S. 997 (1972).

(1972). The case was remanded to the district court for a determination of damages.

On remand the district court appointed a master to assist in the determination of damages. When we last reviewed the proceedings, we observed:

> The master approached the damage issue by compairing Goldstein's costs of operating the patented process with the costs of a similar, unpatented process. He found that use of the Trio process saved Goldstein $52,791 per furnace year in labor savings alone, and that other, smaller savings accrued to Goldstein from use of the patented method as well.
>
> In order to reach a 'reasonable royalty' for use of the patent by the infringer, the master halved Goldstein's savings in labor costs, and concluded that $26,390 was a reasonable royalty for each furnace year. Multiplying this figure by the number of furnace years of infringement and making slight modifications, the master found damages of $1,564,804. The master recommended trebling this amount, as allowed by 35 U.S.C. § 284 (1970). After trebling and the addition of interest, the total damage figure proposed by the master was $5,062,954.
>
> The district court viewed the damage computation not with regard to the money saved by the defendant as a result of the infringement, as the master had, but in terms of what Trio had lost. It looked first to the initial sum of $2,600 per furnace year—the amount actually charged by Trio for licenses in the 1969-1970 era. The district court then increased the $2,600 figure on the assumption that the open infringement had reduced the market price of the license, and proceeded to set damages at $7,800 per furnace year for the years prior to the decision by this Court on validity, a figure three

> times the rate charged by Trio during the 1960's. Damages were set at $15,000 per furnace year for the period following the 1972 adjudication. The employment of these two figures resulted in total primary damages of $653,839. The trial judge then proceeded to use a double multiplier—in contrast to the master's trebling figure—and denied attorneys' fees. With interest, the total damages computed by the district court were $1,726,525.

Trio Process Corp. v. *L. Goldstein's Sons, Inc.*, 533 F.2d 126, 128 (3d Cir., 1976) (footnotes and citations omitted) ("*Trio Process* III").

On appeal we affirmed in part and reversed in part *Trio Process* III, *supra*. We held that there was "no error in the first step of the district court's damage calculation, namely, focusing upon the losses suffered by the patent holder rather than upon the profits illegally made by the patent infringer." *Id.* at 129. *See Aro Manufacturing Co.* v. *Convertible Top Replacement Co.*, 377 U.S. 476 (1964). We also affirmed the district court in its finding "that the license rate established by Trio in the 1960's *may* have been artificially depressed by Goldstein's ongoing infringement, and that the reasonable royalty should therefore be set at a level above the actual license rate."[4] *Trio Process* III, *supra*, 533 F.2d at 126 (emphasis added).

We held, however, that the district court had erred in two respects. First, it had calculated not one royalty

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[4] Contrary to Trio's assertion, however, we did not hold that the reasonable royalty rate was, as a matter of law, higher than the actual license rate. We held only that it *might* be higher if the actual license rate had, *in fact*, been artificially depressed by Goldstein's infringement. Thus, we held in *Trio Process* III that the reasonable royalty should be set at a level above the actual license rate if it was demonstrated, on the basis of the submitted evidence, that Goldstein's infringing activities had artificially depressed the actual license rate established by Trio.

rate but two: one for the period before our decision upholding the patent's validity and the second for the period after.[5] We held that a single reasonable royalty rate should be calculated for the entire period of infringement. The district court has done that and the point is no longer at issue. Second, and most importantly for purposes of deciding this appeal, there was a failure to articulate the reasons underlying the determination of the royalty rate. Thus, the cause was remanded to the trial court for reconsideration of the damages issue. We noted specifically that

> [O]n remand, the district court should give proper regard to the rule that the extent of the deviation of license fees from a reasonable royalty must be determined solely on the basis of the submitted evidence and upon an evaluation of the factors that could affect the reasonable royalty rate, not upon mere conjecture.

Trio Process III, *supra*, 533 F.2d at 130 (footnote omitted). This has not been done, however, and we therefore vacate the determination of damages.[6]

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[5] The district court had set damages based on a reasonable royalty of $7,800 per furnace year for the period prior to our adjudication of the patent's validity and $15,000 per furnace year for the period thereafter.

[6] The dissent asserts that this court in *Trio Process* III trespassed upon the fact-finding authority of the district court and that the majority here has once again arrogated that function to itself. Our perception of the court's role in this case, however, differs from that of the dissent. In *Trio Process* III the court remanded, not because of its desire to induce the fact-finder to award a particular amount of damages but because of its concern with a legal precept in patent law, that the extent of the deviation of license fees from a reasonable royalty be determined solely on the basis of the evidence and not conjecture. Here, we vacate the determination of damages because it does not comply with the rule of law set forth in *Trio Process* III and not, as the dissent asserts, because we have set ourselves up as a fact-finding authority.

II.

In calculating damages for patent infringement, a patent holder is entitled to receive compensation for the infringement but in no event less than a reasonable royalty. 35 U.S.C. § 284 (1976). An exhaustive list of factors relevant to the determination of a reasonable royalty can be found in *Georgia-Pacific Corp.* v. *United States Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D. N.Y. 1970), *modified*, 446 F.2d 295 (2d Cir.), *cert. denied*, 404 U.S. 870 (1971). The district court in this case found a number of those factors to be relevant in its own calculation of damages:

> [1] [T]he existing value of the [patented] process to the licensor as a generator of sales of his non-patented items; and the extent of such derivative or convoyed sales.
>
> [2] The duration of the patent and the term of the license.
>
> [3] The established profitability of the product made under the patent; its commercial success; and its current popularity.
>
> [4] The utility and advantages of the patent property over old modes or devices, if any, that had been used for working out similar results.
>
> [5] The nature of the patent [process] . . . and the benefits to those who have used the [process].
>
> [6] The extent to which the infringer has made use of the [patented process]; and any evidence probative of the value of that use.
>
> [7] The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer.
>
> [8] The opinion testimony of qualified experts.

Applying the "willing buyer and willing seller" rule, the district court considered these factors in the context of hypothetical negotiations between the parties conducted in the absence of the infringing activity. *See Horvath* v. *McCord Radiator & Manufacturing Co.*, 100 F.2d 326, 335 (6th Cir.), *cert. denied sub nom., Carrier Engineering Corp.* v. *Horvath*, 308 U.S. 581 (1938). The court found that the first two of the above factors would have had only a "minimal effect" in the determination of a reasonable royalty. As to the remaining factors, the court noted that "[they] all touch upon the benefits obtained by defendant through its infringing use of plaintiff's patented process." Thus, the court found that "the license fee the parties would have agreed upon absent defendant's infringement would to a large extent have been determined by the economic benefits that were obtained through the use of plaintiff's patented process."

The court found that Goldstein had obtained four distinct benefits from its use of the Trio process: (1) a reduction in labor costs; (2) an increased recovery of copper from the scrap wire; (3) lower fuel consumption per ton of processed material; and (4) the ability to attract more electrical scrap for processing by advertising the advantages of the Trio process. The court, however, was unable to assign a dollar value to each of these benefits but indicated that "the only dollar figure available is the value of the direct and indirect labor savings achieved by defendant."

The court began its calculation of the labor savings with expert testimony, credited by the master, which indicated that Goldstein had realized labor savings of $52,791 per furnace year by virtue of its infringing use of the Trio process.[7] Because Goldstein operated a num-

[7] This figure was arrived at by comparing the cost of operating a similar, noninfringing furnace. Goldstein disputes the basis for this comparison but we need not address this issue in view of our disposition of the case.

ber of infringing furnaces over an eight and one-half year period, the court reduced this figure to $41,652 per furnace year, reflecting the wages prevailing in 1969, the mid-point in the infringing period. The court then found that "[i]n voluntary royalty negotiations untainted by defendant's infringing practices, defendant might well have been willing to split this saving with plaintiff and paid plaintiff a royalty of approximately $20,000 for each furnace year." For two reasons, however, the court further reduced this to $15,000 per furnace year. First, the court held that, as a seller of furnaces, "[Trio] would have been willing to accept somewhat less than the maximum royalty negotiable in order to promote its sales." Second, prior to the lawsuit, "plaintiff was unaware . . . of the exact extent of the labor savings that were obtainable through the use of its process." After multiplying $15,000 by the number of infringing furnaces, the court then doubled the primary damages and added interest of 6% per annum. The total damage award was $2,901,336 plus costs.

Georgia-Pacific lists *first* among the factors relevant to the determination of a reasonable royalty "[t]he royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty." *Georgia-Pacific Corp.* v. *United States*, *supra*, 318 F.Supp. at 1120. In this case, the district court chose to disregard the license fees received by Trio because "they did not show that there was an established royalty and since the fees received were artifically depressed by defendant's ongoing infringement." The court noted its belief that "a royalty negotiated in the absence of defendant's infringement would have been several times higher than the license fees actually received by the plaintiff." We have not, however, been able to discover any evidence in this record to support this conclusion.

It is true that the actual license rate, does not necessarily constitute a reasonable royalty. *See General Motors Corp.* v. *Blackmore*, 53 F.2d 725 (6th Cir. 1939). Thus, when the actual license rate is artifically low, a reasonable royalty may be set above that rate. *Trio Process* III, *supra.* Nevertheless, the actual license rate is an important factor in the determination of a reasonable royalty, at least when those royalties "prove or *tend* to prove an established royalty." *See Georgia-Pacific Corp.* v. *United States Plywood Corp., supra*, 318 F. Supp. at 1120.

We are mindful that the district court concluded that the royalties Trio received under the license agreements did not constitute an established royalty. Nevertheless, the existing license rate does *tend* to show an established license rate. Evidence indicates little, if any, variation in the rate charged *before* or after the infringement.[8] Further, the district court, in its first consideration of the damage issue, apparently found the actual license rate to be probative, although not conclusive, evidence of a reasonable royalty.[9] Thus, the reasonable royalty rate determined by the district court in its first consideration of the damage issue was related to the actual license rate charged. That approach was correct. As we indicated in our earlier opinion, however, the district court erred in failing to demonstrate, on the basis of the evidence, the extent of the deviation of existing license fees from a reasonable royalty. That same void continues to exist in the district court's most recent damage calculation.

We are again unable to discover any support for the district court's conclusion that the existing license rate

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[8] *See* section IV *infra.*

[9] The court recognized that "a prevailing royalty rate may be probative of what constitutes a reasonable royalty." However, as we have previously indicated it fixed a rate of $7,800 per furnace year as a reasonable royalty.

was depressed by Goldstein's infringement. Thus, its reliance on the rationale of *Tights, Inc.* v. *Kayser-Roth Corp.*, 442 F. Supp. 159 (M.D.N.C. 1977), is misplaced.[10] In *Tights* the court disregarded the standard royalty rate, finding it had been artificially depressed "because it was established in an atmosphere of industry-wide infringement of and disrespect for the . . . patent." *Id.* at 165. The court thereupon calculated a reasonable royalty based on hypothetical negotiations between a "willing licensee" and a "willing licensor."[11] Unlike the instant case, the depressing effect in *Tights* was evident. There, the low license rate had been negotiated against a background of open industry-wide infringement. Further, there was evidence that the existing license rate had dramatically declined because of that infringement.[12] Thus, there was a substantial factual basis which justified the court's decision to disregard the existing license rate. In the case before us, however, such factors are not present. The license rate agreed upon between Trio and

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[10] Hartford Nat'l Bank & Trust Co. v. E. F. Drew & Co., 188 F.Supp. 353, *modified*, 188 F.Supp. 347 (D. Del. 1960), *aff'd per curiam*, 290 F.2d 589 (3d Cir.), *cert. denied*, 368 U.S. 825 (1961), which Trio argues supports the district court's opinion, is also distinguishable. There the court stated: "It is a fact of economic life that an open infringement tends to reduce a patentee's fees from its subsequent licensees who must meet the infringer's competition, and such infringement deters potential licensees from taking a license." 188 F.Supp. at 362 n.50. Here there is no indication that the negotiated fees were adversely affected by subsequent infringement or that potential licensees were deterred from seeking license agreements.

[11] In *Georgia-Pacific*, *supra*, the court also determined damages on the basis of the "willing buyer and willing seller" rule. This was used, however, only after the parties agreed there was no established royalty for the patented item. Indeed, the apparent policy of the patent holder was not to enter into licensing agreements but, rather, to maintain its patent monopoly. *See id.* at 1123.

[12] The royalty rate in *Tights* had declined from a nominal rate of $.50 per dozen garments to $.02 per dozen. Tights, Inc. v. Kayser-Roth, Corp., *supra*, 442 F.Supp. at 162.

Goldstein was arrived at in free and open negotiations conducted *prior* to any infringing activity by Goldstein.[13] Furthermore, there are no allegations in this case of industry-wide infringement. Unlike *Tights*, there is no indication that the license rates here declined after Goldstein's infringement. Indeed, even after Trio learned of the infringement, it offered Goldstein a license at the same rate as had been earlier agreed upon.[14] Further, in the years following our decision upholding the validity of the patent, there were apparently no new licenses granted. *See Trio Process* III, *supra*, 533 F.2d at 127. Thus, the thrust of the evidence in this case indicates the absence of a depressing effect caused by Goldstein's infringment. Nor have we been referred to any permissible evidentiary basis to the contrary. Thus, we are compelled to vacate the court's assessment of damages.

III.

Having done so we must now decide whether to once again remand to the district court for a determination of damages or whether, as Goldstein urges, to set the

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[13] Goldstein and Trio entered into two license agreements in 1960. There is not indication in the record that Goldstein's infringing activities began any earlier that 1964 when it contracted with a metal fabricator for the construction of a copy of a furnace Goldstein had purchased from Trio.

[14] The record indicates that, on March 8, 1965, Trio's counsel wrote to Goldstein requesting that it cease its infringing activities. That letter stated, *inter alia*:

> [t]his will formally charge you with infringement of Pat. No. 3.076.421. Further, your activities in this matter appear to directly violate the license agreement between L. Goldstein's Sons, Inc. and Trio Process Corporation dated January 2, 1960.
>
> * * * *
>
> *This letter is written in the interest of having you license the additional incinerator under the same terms and conditions as the previous two incinerators.*

Exhibit DM-15 (emphasis added).

level of damages ourselves. The time and expense already consumed by this litigation strongly argue against remand. Furthermore, the record appears complete and sufficient for such a determination. In briefs and oral argument before this court on their last appeal, both parties agreed that no additional evidence was necessary for the calculation of damages. *Trio Process* III, *supra*, 533 F.2d at 131 n.24. Nor did the district court find it necessary on remand to receive additional evidence.

This court was presented with a similar situation in *Randolph Laboratories, Inc.* v. *Specialties Development Corp.*, 213 F.2d 873 (3d Cir.), *cert. denied*, 348 U.S. 861 (1954). There this court set aside the district court's determination of damages on the ground that it was "grossly excessive." 213 F.2d at 875. The court, however, declined to send it back to the district court but set the damages itself. There, as here, the controversy had been pending for a number of years.[15] Writing for the court, Judge Maris noted that "[t]he record . . . contains all the evidence and other materials necessary to a proper judgment." *Id.* We believe it is appropriate that, in view of the protracted litigation and having vacated for the second time the district court's determination of damages, we should now determine the appropriate level of damages ourselves. However, we will not perform the mathematical calculations as was done in *Randolph* but will leave that task to the district court.

IV.

We begin with the rule that we noted in our last opinion, that the extent of the deviation of the actual

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[15] Trio brought its original action for patent infringement in May 1965. The present appeal marks the fourth time the case has been before this court. *See Trio Process Corp.* v. *L. Goldstein's Sons, Inc.*, 533 F.2d 126 (3d Cir. 1976); *Trio Process Corp.* v. *L. Goldstein's Sons, Inc.*, 493 F.2d 1401 (3d Cir. 1974); *Trio Process Corp.* v. *L. Goldstein's Sons, Inc.*, 461 F.2d 66 (3d Cir.), *cert. denied*, 409 U.S. 997 (1972).

licensing rate from a reasonable royalty must be explained solely on the basis of the submitted evidence. *Trio Process* III, *supra*, 533 F.2d at 130. In the absence of such an explanation, we must examine the record ourselves to determine whether it contains such evidence.

Trio itself did not utilize the patented process. Instead, its only use of the patent was to license it for use by others. The licenses sold were for five year periods. The first license was sold for $20,000. This amount covered the license and the furnace necessary to utilize the process; $7,000 represented the cost of the furnace and $13,000 the cost of the license, *i.e.*, $2,600 per furnace year. In 1960, Goldstein purchased two sets of licenses and furnaces, one for $20,000 and the other for $15,000. Between 1962 and 1969 four more buyers purchased licenses and furnaces at the $20,000 rate. In 1967, another company bought the package with a modified furnace for $25,000. Later that year the package was purchased by another buyer for $19,500. After a decision by Trio to raise the price, two more were sold in 1972 to purchasers other than Goldstein, for a price of $25,000.[16] Thus, throughout this period, the license rate of $2,600 per furnace year appears to have remained relatively constant.

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[16] In its first consideration of damages the district court found that this increase in price included an increase in the royalty rate charged by Trio to about $3,600 per furnace year. At oral argument on this appeal, Goldstein disputed this, asserting that the increase in price was attributable, instead, to an increase in the cost of the furnace. Assuming that the rate was increased, however, only two licenses were granted at this figure. Further, no licenses were granted after our decision upholding the validity of the patent. Even after learning of Goldstein's infringement, Trio indicated, in a letter of March 8, 1965, its willingness to continue licensing Goldstein at the rate of $2,600 per furnace year. *See* note 13 *supra*. Thus, it appears that the license rate charged by Trio over the span of years commencing in 1960, up to and including the last consideration by the district court in September 1978, reflects little change.

Goldstein's infringing activities began in 1965. However, Trio and Goldstein had in free and open negotiations previously agreed to a license rate of $2,600 per furnace year. The license rate Trio charged other licensees did not decline after Goldstein's infringement began. Consequently, if the infringing activity did have a depressing effect on the license rate it could only have been in deterring Trio from charging the rate it otherwise would have negotiated in the open market. The district court, however, disregarded the license fees received by Trio, because it believed they did not reveal an established royalty, and they were artificially depressed by the ongoing infringement. The court found that Trio was a seller of furnaces and thus in negotiating a royalty rate (prior to the infringement) "would have been willing to accept somewhat less than the maximum royalty negotiable in order to promote its sales." It further observed that prior to this lawsuit, Trio was unaware of the exact extent of the labor savings effected by the patented process. But the record indicates that even after learning of the infringement, Trio offered Goldstein a license for the infringing furnace "*under the same terms and conditions as the previous two incinerators.*" (Emphasis added.)[17]

It is true that "[a] patentee who has attempted to avoid costly and time-consuming litigation by settling for less than a reasonable royalty should not be penalized when an infringer forces full litigation." *Tights, Inc.* v. *Kayser-Roth, Corp., supra*, 442 F. Supp. at 165. Here, however, there is no reason to believe that the license rate negotiated by the parties was anything other than a balanced consideration by both Goldstein and Trio of those competing concerns that normally enter into the determination of price in an open marketplace economy. Trio consistently offered licenses at the rate of $2,600.00 per furnace year. Thus, the possibility that Trio, had it

[17] *See* note 13 *supra*.

chosen to do so, might have obtained a higher license rate than that actually charged, is irrelevant. We believe the rate fixed by the parties prior to any infringement is pertinent and highly persuasive. Further, our examination of the record has not disclosed any reason to distrust the existing license rate as a measure of actual damages.[18] Thus, we hold that the $2,600 per furnace year rate negotiated between Trio and Goldstein prior to the infringement, constitutes a reasonable royalty.

V.

35 U.S.C. § 284 provides that the court may increase damages up to three times the amount found or assessed. We agree with the district court that the multiplication of damages depends on the degree of bad faith exhibited by the defendant. Although the master recommended trebling the damages the district court, in its first consideration of damages, determined that "the facts of this case do not warrant trebling the full amount of the primary damages." Thus, the court used a double multiplier. In *Trio Process* III we affirmed that decision as being "within the sound discretion of the district court." 533 F.2d at 131. In its next consideration, the court again used a double multiplier and we find no reason to disturb that decision.

On remand, the district court should calculate damages based on a reasonable royalty of $2,600 per furnace year of infringement. Primary damages should then be multiplied by a factor of two with 6% interest from the date of the infringement, plus costs.[19] Accordingly, the judg-

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[18] "Actual damages must be calculated, not imagined, and an arithmetical calculation cannot be made without certain data on which to make it." Mayor of New York v. Ransom, 64 U.S. (23 How.) 487, 488. *See Trio Process* III, *supra*, 533 F.2d at 130.

[19] Trio argues that, as a penalty for having brought a frivolous appeal, we should require Goldstein to pay substantial additional interest on the judgment and double costs on this appeal. *See* 28

ment of the district court will be vacated and the case remanded for further proceedings not inconsistent with this opinion. Each party to bear its costs of this appeal.

ALDISERT, *Circuit Judge*, dissenting.

Over twenty years ago, Professor Charles Alan Wright published an incisive article entitled *The Doubtful Omniscience of Appellate Courts*,[1] in which, quoting Dean Leon Green,[2] he observed that appellate courts have drawn unto themselves practically all the power of the judicial system. Professor Wright explained:

> Subtle rules about presumptions and burden of proof, elaborate concepts of causation and consideration and the rest, have been devised in such a way that unless the appellate judge handling the case is a dullard, some doctrine is always at hand to achieve the ends of justice, as they appear to an appellate court.
>
> . . . Within the last decade the appellate judges have become bolder. No longer do they hide their assumption of power beneath an elaborate doctrinal superstructure. Instead today's appellate courts are inventing new procedural devices by which their mastery of the litigation process can be made direct rather than devious.
>
> [One such device is] review by the appellate court of the size of verdicts. . . .

Wright, supra note 1, at 751.

U.S.C. § 1912. Given our disposition of this case, however, Goldstein's appeal is clearly not frivolous. Thus, Trio's argument is without merit.

[1] Wright, *The Doubtful Omniscience of Appellate Courts*, 41 Minn. L. Rev. 751 (1957).

[2] L. Green, Judge and Jury 380 (1930).

The present appeal, like *Trio Process Corp.* v. *L. Goldstein's Sons, Inc.*, 533 F.2d 126 (3d Cir. 1979) (*Trio Process III*), is a review of the size of a verdict, albeit an award made by a judge, and verdicts have traditionally been the sole responsibility of a fact-finder.[3] In *Trio Process III*, this court, in my view, improperly trespassed upon the fact-finding authority of District Judge John P. Fullam by vacating his award and employing what Professor Wright labeled an "elaborate concept of causation." This was done solely for the purpose of inducing the fact-finder to award what my colleagues would have awarded had they been the fact-finders in the district court.[4]

Upon remand, Judge Fullam, one of the most able and experienced trial judges in the federal system, evaluated the factors set forth in *Georgia-Pacific Corp.* v. *United States Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970), *modified*, 446 F.2d 295 (2d Cir.), *cert. denied*,

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[3] The traditional view was expressed by Judge Goodrich in *Scott* v. *Baltimore & Ohio R. Co.*, 151 F.2d 61, 64-65 (3d Cir. 1945) (footnotes omitted):

> The members of the Court think the verdict is too high. But they also feel very clear that there is nothing the Court can do about it.
>
> . . . A long list of cases in the federal courts demonstrates clearly that the federal appellate courts, including the Supreme Court, will not review a judgment for excessiveness of damages even in cases where the amount of damage is capable of much more precise ascertainment than it is in a personal injury case.

[4] The specific directive in *Trio Process III* was:

> On remand, the district court should give proper regard to the rule that the extent of the deviation of existing license fees from a reasonable royalty must be determined solely on the basis of the submitted evidence and upon an evaluation of the factors that could affect the reasonable royalty rate, not upon mere conjecture.

533 F.2d at 130 (footnote omitted).

404 U.S. 870 (1971), made new findings of fact, and fashioned a new award, which he explained with a statement of reasons.[5] In short, he conscientiously respected the letter and spirit of this court's 1976 mandate. But upon this appeal—the fourth in a dreary history of unnecessarily protracted litigation—this court, speaking through the present majority, has again disagreed with his factual findings. But this time, instead of sniping at the facts by contriving artificial legal precepts, we have invaded the district courtroom and set ourselves up as a rump fact-finding authority. Because there is neither reason nor empowerment for this action, I dissent.

My colleagues in the majority, I regret to say, have now tossed the Anglo-American tradition of appellate review to the four winds. They claim a new prerogative as an appellate court that goes beyond even Professor Wright's concerns in 1957; they have simply found the facts that are to their liking. Whatever legitimacy this procedure might have in the French *cour d'appel*, the Italian *corte d'appello*, or the German *Oberlandesgerichte*, all courts of the second instance that have the right to find facts anew, the practice is foreign and inappropriate to our common law tradition of appellate review.

My disagreement with the majority in this case, and with the panel in *Trio Process III*, arises from a fundamental philosophical difference about the role of the United States Court of Appeals *vis a vis* the United States District Court. I do not believe that we circuit judges are ministers of justice armed with warrants of authority permitting us to substitute our notions of fact for those of district judges. Our commissions authorize us to sit in a court that is "higher" only because our judicial system is arranged as a hierarchy. The commissions do not endow us with a more sophisticated un-

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[5] The full text of the district court opinion upon which this appeal is based is set forth as an appendix to this opinion.

derstanding of economics, a more profound exposure to the tensions and circumstances of the marketplace, or a superior ability to find facts.

In a transparent effort to substitute their view of a just *factual* result for that of Judge Fullam and to dress a purely factual issue in the tinsel and glitter of a legal precept, the majority state that "[w]e are again unable to discover any support for the district court's conclusion that the existing license rate was depressed by Goldstein's infringement." Maj. Op., typescript at 10. But in the law, the term "conclusion" is a word of art; it is the inferred result of a syllogism, or other form of argument, indicating the logical relationship of legal precepts to the facts found by the fact-finder. A court does not *conclude* as to facts, it *finds* the facts. On the question whether the existing license rate was depressed, the district court did not reach a *legal conclusion*, which would raise a question of law duly subject to review. Rather, it made a finding of fact:

> [T]he Court finds that the license fee the parties would have agreed upon absent defendant's infringement would to a large extent have been determined by the economic benefits that were obtained through the use of plaintiff's patented process. *See Tights, Inc.* v. *Kayser-Roth Corp.*, [442 F. Supp. 159, 163 (M.D.N.C. 1977)].
>
> Defendant obtained the following benefits from using plaintiff's process to remove insulation from scrap wire; (a) a reduction in labor costs; (b) an increased recovery of copper from the scrap wire; (c) lower fuel consumption per ton of processed material; and (d) the ability to attract more electrical scrap for processing by advertising the advantages of plaintiff's process. It should be noted that defendant was clearly aware of these benefits when it commenced infringement of plaintiff's patent

> since it had previously used plaintiff's process under two properly purchased licenses. Thus, if defendant had negotiated for additional licenses instead of infringing plaintiff's patent, defendant would have been willing to pay substantially more than it had paid for the initial licenses since the process had proven its worth and the defendant would have assumed little or no risk in purchasing the additional licenses.

Appendix, *infra*, at 23. [Typescript at 23].

The district court found that the significant economic benefits to the infringer from use of the patented process would have been reflected in the license fee the parties would have negotiated but for the infringement. The basis for the finding of economic benefit is in the record and I cannot say that the trial court was clearly wrong in finding that that benefit would have been reflected in the license fee. Therefore, the majority's statement that "the thrust of the evidence . . . indicates the absence of a depressing effect" on the value of a license and its statement that there is no "permissible evidentiary basis to the contrary," Maj. Op., typescript at 11, flies in the face of Judge Fullam's meticulous discussion of the economic benefits obtained by the appellant. I believe that a fair reading would show that Judge Fullam's opinion illustrates the "permissible evidentiary basis" of his findings. I am satisfied that given the record evidence of benefits derived by the infringer, it was permissible for the fact finder to draw the inference that these benefits are relevant to a determination of lost royalties. The majority utilize an interesting technique to avoid the significance of the record facts. They would sweep the findings of benefits to the infringer under a rug, for the trial court found that Goldstein had realized labor savings of $52,791 per furnace per year, yet the majority avoids this critical fact with "we need not address this

issue in view of our disposition of the case." Maj. Op., typescript at 8, note 7. Yet their "view of . . . the case" is that there is no evidence to support the trial court's findings.

Although today's decision of the court and the previous decision in *Trio Process III* involve only one case, they reflect a point of view in this court, with which I am in strong disagreement. It is a point of view reflecting a belief that an appellate court has the right to encroach upon the prerogatives of a fact-finder. Today's decision, in particular, constitutes a dangerous extension of a line of cases that I believe were wrongly decided because they tampered with fact-finding orthodoxy. *See, e.g., Harganrader* v. *Califano*, 575 F.2d 434 (3d Cir. 1978); *N.L.R.B.* v. *Armcor Industries, Inc.*, 535 F.2d 239 (3d Cir. 1976). My view is reflected in the following passage:

> The entire responsibility for deciding doubtful fact questions in a nonjury case should be, and we think it is, that of the district court. The existence of any doubt as to whether the trial court of this Court is the ultimate trier of fact issues in nonjury cases is, we think, detrimental to the orderly administration of justice, impairs the confidence of litigants and the public in the decisions of the district courts, and multiplies the number of appeals in such cases.

Pendergrass v. *New York Life Insurance Co.*, 181 F.2d 136, 138 (8th Cir. 1950).

To the extent an appellate court strays from its traditional role of reviewing the choice, interpretation, and application of legal precepts, and unnecessarily intrudes upon the rights and privileges of the trial courts, there is a corresponding impairment in the confidence of litigants and the public in the decisions of the trial courts, and a broadcast of an unwarranted belief that appellate

courts are better qualified than trial judges to decide what justice requires. I believe the court's decision today does precisely that.

Accordingly, I would affirm the judgment of the district court in all respects, for the reasons more specifically set forth by Judge Fullam in the appendix to this opinion.

APPENDIX

[Judge Aldisert here attached as an Appendix to his dissent Judge Fullam's opinion of September 22, 1978, heretofore printed as Appendix G, p. 77a.]

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

No. 78-2566

TRIO PROCESS CORPORATION and
FRANKLIN SMELTING & REFINING CO., a partnership

vs.

L. GOLDSTEIN'S SONS, INC. and METAL BANK, INC.,
Appellants

(D.C. Civil No. 38,166)

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

Present: ALDISERT, ROSENN and GARTH, *Circuit Judges*

JUDGMENT

This cause came on to be heard on the record from the United States District Court for the Eastern District of Pennsylvania and was argued by counsel on September 6, 1979.

On consideration whereof, it is now here ordered and adjudged by this Court that the judgment of the said District Court, filed October 12, 1978, be, and the same is hereby vacated and the cause is remanded for further proceedings consistent with the opinion of this Court. Each party to bear its costs of this appeal.

ATTEST:

Clerk

January 2, 1980

Certified as a true copy and issued in lieu of a formal mandate on March 11, 1980.

Test:

THOMAS F. QUINN
Clerk, United States Court of Appeals
for the Third Circuit

APPENDIX I

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

January 15, 1980

No. 78-2566

TRIO PROCESS CORPORATION and
FRANKLIN SMELTING & REFINING CO., a partnership

vs.

L. GOLDSTEIN'S SONS, INC. and METAL BANK, INC.,
Appellants

(D.C. Civil No. 78,166)

Present: ROSENN, *Circuit Judge*

1. Motion by appellee, Trio Process Corporation, for a seven-day extension of time within which to file a petition for rehearing from its present due date of January 16, 1980, to and including January 23, 1980,

in the above-entitled case. The opinion was filed and the judgment entered on January 2, 1980.

Respectfully,

Clerk

ags

edc.

P.S.—Any response from opposing counsel will be promptly forwarded to you upon receipt in this office.

The foregoing Motion is granted.

By the Court,

/s/ Max Rosenn
Judge

Dated: January 16, 1980

APPENDIX J

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

No. 78-2566

TRIO PROCESS CORPORATION and
FRANKLIN SMELTING & REFINING CO., a partnership

v.

L. GOLDSTEIN'S SONS, INC. and METAL BANK, INC.,
Appellants

SUR PETITION FOR REHEARING

Present: SEITZ, *Chief Judge*, ALDISERT, ADAMS, GIBBONS, ROSENN, HUNTER, WEIS, GARTH, HIGGINBOTHAM, and SLOVITER, *Circuit Judges* *

The petition for rehearing filed by

TRIO PROCESS CORPORATION

in the above entitled case having been submitted to the judges who participated in the decision of this court and to all the other available circuit judges of the circuit in regular active service, and no judge who concurred in the decision having asked for rehearing, and a majority of the circuit judges of the circuit in regular active service not having voted for rehearing by the court in banc, the petition for rehearing is denied.

By the Court,

/s/ Max Rosenn
Judge

Dated: February 6, 1980

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* Judge Gibbons would grant the petition for rehearing.

APPENDIX K

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

No. 78-2566

TRIO PROCESS CORPORATION and
FRANKLIN SMELTING & REFINING CO., a partnership

v.

L. GOLDSTEIN'S SONS, INC. and METAL BANK, INC.,
Appellants

ORDER AMENDING
SUR PETITION FOR REHEARING

Present: SEITZ, *Chief Judge*, ALDISERT, ADAMS, GIBBONS, ROSENN, HUNTER, WEIS, GARTH, HIGGINBOTHAM, and SLOVITER, *Circuit Judges* *

The petition for rehearing filed by
Trio Process Corporation

in the above entitled case having been submitted to the judges who participated in the decision of this court and to all the other available circuit judges of the circuit in regular active service, and no judge who concurred in the decision having asked for rehearing, and a majority of the circuit judges of the circuit in regular active service not having voted for rehearing by the court in banc, the petition for rehearing is denied.

By the Court,

/s/ Max Rosenn
Judge

Dated: February 11, 1980

* Judges Gibbons and Higginbotham would grant the petition for rehearing.

APPENDIX L

Relevant Constitutional and Statutory Provisions and Rules

ARTICLE I, SECTION VIII, CLAUSE 8 OF THE UNITED STATES CONSTITUTION

The Congress shall have Power * * *

To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;

35 U.S.C. § 284

Damages

Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court.

When the damages are not found by a jury, the court shall assess them. In either event the court may increase the damages up to three times the amount found or assessed.

The court may receive expert testimony as an aid to the determination of damages or of what royalty would be reasonable under the circumstances. July 19, 1952, c. 950, § 1, 66 Stat. 813.

FEDERAL RULE OF CIVIL PROCEDURE 52(a)

FINDINGS BY THE COURT

(a) Effect. In all actions tried upon the facts without a jury or with an advisory jury, the court shall find the facts specially and state separately its conclusions of

law thereon, and judgment shall be entered pursuant to Rule 58; and in granting or refusing interlocutory injunctions the court shall similarly set forth the findings of fact and conclusions of law which constitute the grounds of its action. Requests for findings are not necessary for purposes of review. Findings of fact shall not be set aside unless clearly erroneous, and due regard shall be given to the opportunity of the trial court to judge of the credibility of the witnesses. The findings of a master, to the extent that the court adopts them, shall be considered as the findings of the court. If an opinion or memorandum of decision is filed, it will be sufficient if the findings of fact and conclusions of law appear therein. Findings of fact and conclusions of law are unnecessary on decisions of motions under Rules 12 or 56 or any other motion except as provided in Rule 41(b).

FEDERAL RULE OF CIVIL PROCEDURE 53(e)(2)

(2) *In Non-Jury Actions.* In an action to be tried without a jury the court shall accept the master's findings of fact unless clearly erroneous. Within 10 days after being served with notice of the filing of the report any party may serve written objections thereto upon the other parties. Application to the court for action upon the report and upon objections thereto shall be by motion and upon notice as prescribed in Rule 6(d). The court after hearing may adopt the report or may modify it or may reject it in whole or in part or may receive further evidence or may recommit it with instructions.